

ITEMS OF INTEREST.

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Notes from the Profession.

THE PROCESS OF CALCIFICATION, AND CAUSES OF DETERIORATION.

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The dates at which the calcification of the teeth commences are somewhat in the following order: the temporary teeth, at about the end of the twelfth week of intra-uterine life; the first permanent molars, the sixth month; the permanent incisors and cuspids, the first month after birth; the second molars the third year; the third molars, the twelfth year. It is usual to assume that ill-made teeth result from deficient supply of the lime salts which go to build the tissues. We do not know whether this is ever the case or whether the defect arises always or sometimes from other causes affecting the tooth germ, whereby it is prevented from undergoing the process of conversion; but be this as it may, we can perceive that it must be useless to attempt directly, or indirectly, by medical treatment, to influence the formative process, to promote the production of enamel of good quality, after the lapse of the periods named in the different classes of teeth.

The one dark spot in our knowledge of the remote cause of caries, is found in this first pre-disposing inherent structural weakness of the tissues. That the dental tissues vary much in strength in different individuals, we demonstrate daily in our practice. We meet with well-made teeth, the sound enamel of which tries the steel of our best tempered chisels; and we encounter badly formed teeth, the soundest enamel of which is throughout so chalk-like in its softness, as scarcely to afford a secure foundation even for a plastic filling. Between these extremes there are all varieties; and teeth of general defective character often present patches of surface, the enamel of which consists merely of an imperfectly united mass of granules. Similar defective spots are here and there in teeth of better formation. Sometimes enamel fibers at parts are penetrated at their centers by minute tubes,

thus making the tissue at such places porous. Defects in quantity are seen as frequently as these defects in quality, and they are equally variable in extent. Honeycombed teeth have enamel full of small pits and fissures, and there is scarcely a set of teeth to be found in which, here and there, in one or more teeth, an isolated crack or cleft—a solution in the continuity of the tissue—does not exist.

Our knowledge, I repeat, of the origination of mal-development of the dental tissues is very incomplete. We know that vast numbers of individuals in highly civilized states have ill-made teeth; and we know that the quality of the dental tissues varies much in different nations. I should place the Scotch as a people in the first rank of dental development; after them the North Germans; then the English; then the French; and lastly the people of the United States. Among the last, I of course only refer to that part of the population, native by sufficiently long descent; those on whom—through their ancestors—the climate and other forms of evolution have set their mark. There is evidence, though not conclusive, that in all races of advanced civilization there has been, in later generations, a notable further deterioration in dental development.

How far can we account for these circumstances, and trace the causes to their true origin? We have very few solid facts. One is the comparative disuse of the organs of mastication. This has led in civilized races to decrease in size and strength of the whole apparatus of mastication, jaws, muscles and teeth.

It has been plausibly argued that dental deterioration—and especially progressive deterioration—may be accounted for by the overwhelming demands on the vital powers by the growth of the brain and its increased exercise in modern life. The brain and the jaws are fed from the common carotid artery, and, it is urged, the demand for blood by the growing and working brain leads to imperfect supply of the masticatory organs. This argument gains support from the fact that the people of the United States, with certainly the worst teeth, present a type of humanity one of whose most striking characteristics is enormous activity of brain and nerves, with expenditure of vital energy through these channels. But I believe we shall find this hypothesis will not work, and it remains hypothesis, difficult of negation, impossible of proof.

Dental deterioration has been ascribed entirely to improper and imperfect feeding of children, to insufficiency in the food of lime salts, the proper pabulum of the developing teeth. If this were true, the whole osseous system—which is built of the same chemical constituents as the teeth—must in every case be equally ill-constructed; it would be impossible to find an individual with a solid skeleton—a massive bony system—in conjunction with faulty dental tissues.

Perhaps with one exception, there is no modern people displaying general progressive physical degeneration likely to be accompanied by ill-developed teeth, and certainly the general physical development of most European nations has continuously advanced from mediæval times. But it must be recollected that there has been at the same time among the populations a constant augmentation in the numbers of the physically imperfect, of those unfitted to live under less favorable circumstances. Vast numbers of the phthisical, the scrofulous, the rickety, and the congenitally syphilitic, who would formerly have perished in childhood, are now by science preserved alive, and these imperfect types are all associated with faulty dental development. Least of all among the nations can the people of England be suspected of general physical degeneration. No doubt, injury has been caused by the aggregation of great masses in cities, the sanitation of which is imperfect, and in the employment of great numbers of men, women and children in crowded, ill-ventilated factories. Never before were the great bulk of the British so well sheltered, so well clad, and so well provided with food and the smaller luxuries of life ; never before was the public health so well cared for, and never was there more freedom from diseases to leave their mark on the constitution, and lead to degeneracy in descendants. I express it as my opinion that the higher, or wealthier classes, display on the whole the worst dental development ; but these classes surely do not show any signs of general decay. Though living luxuriously, they are not enervated ; they no longer take alcohol to excess, and their physique is maintained by their love of sport and athletics, a dominant passion not confined to youth or sex.

Admitting that deterioration of the apparatus of mastication has advanced in the present and in recent generations, we are not, therefore, to believe that this decadence is to continue. The proper performance of this function is necessary to health. So long as mastication is an advantage in making the man a better animal, it is absurd to suppose the forces of evolution will go on to produce a toothless man.

Dental caries is no more a necessary accompaniment of civilization than are those other preventible diseases I named. Science is giving to mankind the power more and more to mould his physical future, and we need not fear that this power will be wanting in the case of the teeth when once the problems are illuminated by the light of knowledge. The time may come when there shall be no more dental caries.

And the nations are not interfering improperly with natural forces nor retrograding in physical development. To this, however, I believe, there is one exception. The French, having adopted almost universally the practice of restricting population by artificial means, are prevent-

ing the action of those evolutionary forces, which, given fair play, ensure in the end the survival of the physically fittest as surely now in the nineteenth century as in the ages of primitive man. An effectual system of checking artificially the natural increase of population, must act in several ways to the detriment of the nation's physical standard. It prevents, in great measure, that rapid destruction of the weaker in the battle of life which takes place where there is a redundant population; it enables even poor parents to rear sickly offspring who would probably perish for lack of sufficient care and necessities of life were the number of children greater; and sickly offspring are most commonly found among the firstborn, who are those most liable to inherit some diseases, especially syphilis.

The French are carrying on what is really a gigantic system of artificial selection, and by insuring the survival of the least fit progeny are producing a stunted inferior race. France among European nations is the only one whose population does not increase. The arrest is due to known causes which are attracting the attention of her serious statesmen as well as that of foreign sociologists.

The physical deterioration of the French seems almost proved; but there is not evidence to show that their teeth are bad in proportion. We must not forget a possible fallacy in this reasoning as regards the teeth. The French use their jaws less than any other nation; they are the best cooks in the world, and the whole population live on the softest food, including bread of the most delicate manufacture. It is puzzling to observe that the teeth of the French are better than those of the Americans, who cannot be accused justly of adopting extensively those vices of civilization practised by the French.

These observations and contradictory facts are intended to show that when we are asked categorically to state the cause of dental deterioration—inherent structural weakness of the tissues—we must confess our ignorance; must state that we need more light, and must explain that probably the cause is not single and simple, but extremely complex. We do not know yet what are all the factors going to produce these results.

Engine Brush.—The following method presents advantages: Take your engine porte-polisher and insert in it all the bristles it will hold, then drive into the center of the brush a hard, wood wedge, which should be notched to break off even at the end of the porte. Cut the bristles, leaving them about a quarter of an inch in length. A few minutes previous to using the brush, place it in water to tighten the wedge. This brush is very useful in cleaning the teeth and finishing fillings.—*Dental Register.*

CHANGE OF TEETH WITH CHANGE OF TYPE.

DR. JAMES TRUMAN, PHILADELPHIA, PA.

Change of race and type cannot go on century by century without having its legitimate effect on the teeth as well as other tissues. They are apparently an evolution from lower growths. The histological features of the human teeth are but a modification of those of inferior animals, changed by conditions and the uses to which they are to be applied. The importance of the teeth in the study of form has been recognized since the time of Cuvier, who displaced the old mode of study of habits and external surroundings by that of the study of organs, and by this means was able to determine, with probable exactness, the general characteristics of an animal from a single tooth. This was subsequently greatly simplified by Bichat, who regarded the tissues composing organs as of vastly more importance; and it is this latter view that has led to some of the most important discoveries in natural history, and on which Agassiz based his celebrated classification, by which, as Buckle expresses it, "fossil ichthyology for the first time assumed a precise and definite shape." The same author further remarks: "Another discovery, of which the application is much more extensive, consists of the striking fact that the teeth of each animal have a necessary connection with the entire organization of its frame, so that, within certain limits, we can predict the organization by examining the tooth. This beautiful instance of the regularity of the operations of nature was not known till more than thirty years after the death of Bichat, and it is evidently due to the prosecution of that method which he so sedulously inculcated." While it is possible to build an extinct animal into form from a single tooth, it is equally possible, in reverse order, to designate approximately, from a given climate, flora, etc., the probable teeth necessary for animal life. The conditions that we know existed in prehistoric ages were adverse to anything but coarse developments. It was impossible for organic life to be molded into the finer forms of subsequent ages. As the atmosphere yielded its proportion of elements, the flora developed into new and more refined expressions; and, as the flora became refined, animal life assumed new and better forms. The laws of development are so clearly marked in the different geologic periods of the world's life, that the intelligent thinker has but to study them to be satisfied that everything is subject to progressive law, working up from inferior developments. When we adopt the principles enunciated by Bichat, and enter into an examination of the tissues of teeth, we more clearly understand these conditions. The immense molar of the mastodon giganteus clearly indicates the coarseness of vegetable life by the efforts of nature to meet this want, for it is a distinctly-marked tooth, wholly unlike that of its congener that followed it—the ele-

phant. The large cusps, capped with a thickness of enamel of extraordinary depth, forcibly illustrates the character of food required and the force requisite for its mastication. It is the type of prehistoric immensity, and carries the mind back to a period when the earth was given over to savage forms, and when, if man existed, he too partook of the same degree of coarseness, and the giants of fable may have had a real existence. Reasoning from analogical evidence this must have been the case. Advancing from the mastodon to the elephant, as before observed, the changes are marked. The prominent cusps have given way and the tissues are differently arranged to meet the requirements of mastication. As this refining process has gone on from period to period, these coarser forms have either disappeared entirely or have relegated to those districts of the world's surface that are more nearly allied to the conditions where nature, in the wildness of a prehistoric era, affords them a home and surroundings suitable to build these gross forms. Thus, without extending the argument, we may assume there has been a gradual but certain change, and that change has been the direct outgrowth of climatic conditions. This must precede all other changes. As the variations take place in the proportions of the elements in the atmosphere, a corresponding change is observed in all forms of food, from the vegetable to the animal, and at last the refining process reaches man, and the higher forms of civilization are but the evidences of this progressive development; for, whether we admit the existence of a soul or not, it is clear that the refining process does not stop with the body. In proportion to its advancement from grosser forms is the mind developed, and it assumes phases impossible under a different and grosser diet. The butcher's dog is a name synonymous with savagery, and the first steps to civilize a nation of savages must be through the stomach. Educate our Indian tribes to the use of cereals as a substitute for wild meat, and then there will be a hope of saving the remnant of aboriginal life.

It is a warmly-cherished belief in the Old World that the nobility are of a different blood from the ordinary run of men; and it is this belief that gives them the preponderance of power they possess. In one sense it is true. Surrounded by all the luxuries of a higher civilization they have developed—a race within a race—of superior mold to the common people, and had the same exact observance of law in all its requirements been adhered to greater results would have been accomplished. What is true of the nobility is true of all the higher classes throughout the world. It is simply a species of hot-house development of the human body, physical and mental, and may progress with good or ill results in proportion as the development is brought under the control of positive law.

The adaptation of teeth to the peculiar requirements of food is one

of the most interesting and instructive facts observed in the study of comparative anatomy. Not only are the forms modified, but the tissues are specially arranged to accomplish desired results, and where extraordinary strength is required, they are subjected to a further modification. From the lowest form to the highest is this law of adaptation invariably observed. We see it beautifully manifest in that member of the sparoid family, the common sheep's-head (*sparus ovis*) with its cutting incisors, so similar to the sheep from which it derives its name, and used for the same purpose—nipping the grasses from the bottoms in shallow seas; its rounded molars, formed for great strength and adapted for crushing small crustacea; the extraordinary development of enamel, with its interlacing fibers, giving the greatest power of resistance. Then we follow up the various series through the rodents, with their wonderful, ever-growing incisors, and the effective combination of tissues in the enamel and dentine of varying densities; the remarkable organization of tissues in the ruminant molars; the carnivora, with the series of cutting or tearing teeth; the dog, with his almost human posterior molar that unerringly indicates to the naturalist the possibility of mixed food; and still further on, to the quadrumana, with the almost human series; and finally, our own order, the bimana, with its unbroken series, in which mixed food is the certain indication. Now, if the law of adaptation has effected these changes in the past, it must be conceded that any changes in condition or food would equally produce the same results now or at any future time, or, in other words, a law established remains a law throughout all ages. It is clear, therefore, that if we admit that formation and growth depend on the necessities of the individual, there is a possibility that the coming ages may witness great changes in the development of tooth-structure, in harmony with the progress made in other portions of the economy. Whatever views may be entertained in regard to the theory of evolution, the assertion cannot be successfully controverted that the teeth of our own class have made most remarkable changes in form if not in structure. From the Australian savage, perhaps the most degraded of his order, with his square jaw, prominent canines, increased size of the series, and an altogether close resemblance to the higher quadrumana, up to the highest civilization, we find that progressive development depends on the refining influence of climate, food and surroundings. It is doubtless true that if we advance by law we can retrograde by law; or, in other words, if teeth have changed through the developing processes of the ages, it is possible that by a change of condition they may revert to the original type, for the possibility of advance carries with it the possibility of retreat. This tendency to a retrograde metamorphosis is ever present. It is manifest peculiarly in our own teeth in the three-rooted superior

bicuspid, two rooted inferior, and the frequent exhibition of double roots in the six anterior teeth and the occasional increase above normal number in those of the molars. While it is not likely that the law of change will carry, in reverse order, to the origin of our class, it is nevertheless a striking proof of kinship to a lower order.—[Trans. Odontological Society of Pa.]

The best way to save teeth is to protect them from decaying, by keeping them clean and using them properly. There is a great difference in the way people use their teeth, and there is a great difference in the way they clean them. Some people say they clean their teeth three or four times a day, whereas in fact they do not clean them at all; they only go through the form. And people should use their teeth in mastication. The teeth were made to work, not solely to ornament the mouth or to help the tongue mumble the food round. They are made to masticate the food, and if they are made to masticate the food properly, instead of growing worse, they will grow better. When, at sixteen years of age, I entered the profession, my preceptor told me I had fourteen cavities in my teeth, and my teeth were soft and chalky. I had the fourteen cavities filled, and I do not think I have a cavity to-day, and my teeth are no worse than they were when I was sixteen years of age. I think we require harder food than is usually used, and that which has more lime in it. I believe the greater number of persons, when eating lamb or veal, if they come across a piece of white, soft bone, will shove it aside. I eat all that it furnishes lime to my system and gives my teeth exercise.—S. C. G. WATKINS.

A patient came to a surgical clinic at the Rush Medical College to obtain Dr. Gunn's opinion of an operation which had been performed by another surgeon—simply to get his *opinion* about what had been done. Dr. Gunn put him out of the room at once, stating that it was not his place to criticise other surgeons. A lesson for dentists.—BROPHY.

It is not our business to answer questions (unless before a court) as to the operations of another operator. Our business is to say what needs to be done, and to do it. The public have no right to ask our opinion of operations they may have had performed, and we certainly have no business to answer such inquiries.—CUSHING.

Sleeplessness may often be overcome by a few free, full breaths of pure air. Raise the window, and take it direct from the atmosphere. Take deep, copious breaths as possible. And while doing so, don't wrap yourself up for fear of "catching a cold"; let this pure air come freely on the whole body.

USING THE TEETH.

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If any one cause is greater than another for the deterioration and the rapid decay of the teeth, and why they are worse in this than in former generations, it is the fact that we have so little use for them, and use them so little.

This condition, in the absence of compensating care, is sufficient of itself to account for the destruction of teeth in this country. The construction and arrangement of the teeth for beauty and usefulness is as admirable as any other feature. With the exception that *present conditions* are far more unfavorable, they are no more subject to *failure* than the eyes, or the hair, or many other parts of the body. American nerves are as much a failure as American teeth. It is the part of wisdom to find the *cause* and apply the *cure*, both of which are possible and practicable. A free, sensible use of the teeth will keep them comparatively clean, and secure their strength, and these two conditions will ensure their durability and freedom from disease. I do not say that in this manner we can cure all the ills which have accumulated during the ages, and are transmitted from generation to generation with increasing force. But where the general and particular conditions are good, the means named can be relied on. Strength and cleanliness are indispensable conditions to any considerable degree of success and satisfaction. Otherwise the acknowledged frail machinery can with difficulty be "repaired." When the foundations are destroyed what can the righteous (dentist) do?

The attention of the profession has been and is now mainly directed to this "repairing," the materials used and the manner of using them. "There is a time for everything;" and, probably, this repairing the teeth has received only its share of attention in the proper time. Indeed, the people have not been prepared to accept the doctrine of "prevention," much less to reduce it to practice. Possibly, as a rule, the dentist's instructions (which should be the most valuable part of his services) are disregarded.

The beneficial results of exercising the teeth are shown by the fact that the dentist can tell the side of the mouth used the most, because he will always find it healthier, stronger, cleaner. Gymnastics and games of various kinds are practiced to furnish exercise for other parts of the body, for people who have no employment answering the same purpose; why should they neglect exercise of the teeth?

How to get it, is the question. Among the essentials are intelligence, will, energy and daily food. Then the teeth, jaws, muscles and glands can be provided with a good amount of exercise. But stop! It must be done right. That careless way of doing it won't answer at all. Many have suffered from violent gymnastics. Be deli-

berate. Acquire speed slowly. Don't try to see how soon you can get it down. If it don't taste good in the mouth, it won't feel good in the stomach. The sense of taste is in the tongue. Enjoy it a reasonable length of time. Don't throw away the crusts, they give the most exercise, and are by far the most tasty, enjoyable part of the food. No food is fit to go into the stomach till it is thoroughly insalivated. To accomplish this, and the mastication of the food, gives the needed exercise. Don't chew with the mouth open; it don't look well.

How simple are these directions. As simple as to bathe in the Jordan. But if any reader considers them silly, then please don't blame the dentist or be angry with the prophet, for "to this complexion we must come at last."

As these points are of so much importance, but so little observed, we may recapitulate; First: the flavor or taste of food is enjoyed only in the mouth, and by proper mastication. Secondly: it is wholly unfit to be taken into the stomach till it is thus prepared and insalivated. Thirdly: the act tends to cleanse and polish the teeth. Fourthly: it gives strength and firmness to the teeth, jaws, and other parts involved, and a healthy action to the glands, membranes and muscles.—*The Dentist.*

A large proportion of failures, where gold is used, is due to over malleting—not from too heavy or too long-continued malleting, but from carelessness, specially at cervical margins. The enamel is slightly fractured, causing a failure in time. In some cases we can see where it is fractured, but in others it occurs where we cannot see it. The cavity may have been well prepared, but if hard blows are used on the first pieces of gold, the cervical wall will be injured; extreme care should be used to prevent injury at this part of the cavity. That is one great source of failure which has been overlooked. If we could examine these cases with the microscope, we would find many fractures where we suppose the margins to be perfect.—CUSHING.

I have used the phosphates under gold fillings with wonderful success, by making good anchorages, not only up near the free margin of the dentine, but also making insignificant retainers in the phosphates. I do not mean to make retaining-points in the phosphates, but simply insignificant retainers, thus giving your main retainers a chance to build down over the phosphates.—L. A. READING.

Nansook—fine, unsized muslin—is nice to dry the cavities of teeth, and for other purposes about the mouth. We like it better than bibulous paper or spunk. The pieces—say 3 x 4 inches—are easily washed and ironed when soiled, and are then better than new.

CLINIC OF PROFESSOR GARRETSON AT THE MEDICO-CHIRURGICAL COLLEGE, PHIL'A.

SERVICE IN ORAL SURGERY.

[Reported for the *Independent Practitioner*.]

CASE I.—HYPERTROPHY OF THE TONSILS.

The patient presented with a marked enlargement of the tonsil of the left side, the excessive growth causing much interference with speech, and impairing the sense of hearing by pressure on the Eustachian tube. The condition being of several years' duration, and causing much inconvenience, request was made for removal of the gland, either by cauterization or excision. The professor preferring the cautery to the more severe operation, made use of London paste as the medium for treatment. This preparation consists of equal parts of quick lime and caustic soda, mixed into a mass by the addition of a few drops of absolute alcohol. Placing the patient in such a position as to get full advantage of the light, the tongue was held down with a depressor, and a small quantity of the paste applied to the parts, on the cup of an ordinary director, and held in contact about one minute. Upon its removal the enlarged surface was seen to assume a dark-red color, quickly followed by a deep purple, a few hours later the eschar taking on a yellowish-white appearance. The remark was made that anyone, with ordinary precaution, could apply so simple a remedy, care only being required to mix the paste to proper consistency. If too thin, it will run over surrounding tissue and cause unnecessary destruction; if too thick, it will not adhere to the parts intended to be removed. Should such an accident occur, the fauces should be immediately gargled with water. The case was cured by three similar applications to the one described, repeated at intervals of four days, the pain accompanying the treatment being inconsiderable.

CASE II.—EXSECTION OF THE AURICULO TEMPORAL NERVE.

This was a case in which the patient had suffered some years with neuralgia in the region traversed by this nerve, for which she had received varied remedies of a sedative kind, among others local applications of chloroform, belladonna, aconite, opium and hypodermic injections, in addition to constitutional treatment, but had only been temporarily relieved. The success attending operations for facial neuralgia in this clinic prompted her to come to it, in the hope of obtaining more permanent benefit. Causes of neuralgia of this class are not unfrequently so obscure that any treatment resorted to is likely to be experimental at best, no diagnosis being more difficult than that connected with what is ordinarily termed neuralgia. The knowledge that successful results have been obtained in similar cases, prompted the performance of an operation as the only remaining hope of ridding

the patient of the almost constant pain to which she had been subjected. Simple division of a nerve is not sufficient, but excision of a portion is necessary, otherwise it will reunite, and the continuity being re-established, the operation certainly fails. The procedure consisted in first making out the position of the superficial temporal artery, behind which the nerve ascends over the base of the zygoma. An incision upward, about one inch in length, was then made through the integuments, the artery being cut and ligated. (Ligation of the artery is not a necessity, but in this case was practiced because of the great congestive condition exhibited about the parts.) The nerve was found in position, and a portion excised. The parts were next drawn together, two stitches inserted, and compresses saturated in phenol-sodique placed at each side of the wound. An overlying external pad completed the dressing.

CASE III.—EPULIC TUMOR.

To state that a growth is an epulic tumor gives no clue as to diagnosis, the assertion merely indicating position, the name being given to all abnormal growths on the gum. The patient introduced had an extensive tumor, situated in such a position as to necessitate the removal of the whole of the alveolar process of the left superior maxilla, from the central incisor tooth to the tuberosity, the intervening teeth being in position. The growth was of an indurated nature, arising mainly from the periosteum, osseous trabeculæ passing from the bone beneath. In the early stages of such tumors the mucous membrane is pushed outward, causing small prominences of a rounded shape to appear behind, in front, or between the teeth, eventually assuming extensive proportions. The operation consisted in first extracting the central, lateral, and bicuspid teeth, these latter being involved in the growth, then with a circular saw, revolved by the Bonwill surgical engine probably eight thousand times a minute, the whole of the involved portion of the bone, consisting of the alveolar process and a portion of the floor of the antrum, was cut away, the time occupied being but a few minutes. An operation of this character, previous to the adaptation of the dental engine to surgical purposes, was exceedingly complex, necessitating the making of a cut from the angle of the mouth up the side of the face, and the removal of the diseased parts by the aid of hand-saw and bone forceps, uncertainty prevailing as to whether all the involved portions were cut away. Operating with the engine and saw in the manner described, the professor was enabled to remove only such parts as were connected with the growth, and to say emphatically that it would not recur, neither would any disfigurement result. During the operation the posterior, or descending palatine artery, which supplies the gum tissue of the upper jaw, hard palate and alveoli, was cut, the hemorrhage being controlled by the insertion of a plug into

the canal. After-treatment consisted in syringing out the debris, and washing the parts with dilute phenol-sodique. The patient rapidly recovered from the effects of the operation, and was discharged from the hospital ten days afterward.

THE WAY A NEWSPAPER LOOKS AT IT.

SHORTENING A JAW—A DIFFICULT SURGICAL OPERATION NOW BECOME OF COMMON OCCURRENCE.

A number of years ago there lived in Wheeling a certain Dr. Hullihen, who became famous as a surgeon. Some of his operations were very brilliant and decidedly awe-inspiring among the common people. One case in particular was thought to be unparalleled at that time. A young lady belonging to one of the best families in Eastern Ohio was terribly disfigured by a protruding lower jaw. Hearing of Dr. Hullihen's skill as a surgeon she prevailed on her father to let her go to Wheeling and see if anything could be done to improve the shape of her face. She went alone, and nothing was heard of her for two weeks, except that she arrived there safely.

One evening, as the shades of night were gathering, a really handsome lady drove up to the gate in front of the farm house and asked if she could get lodging for the night. The well-to-do farmer said they did not keep an hotel; besides they were expecting their daughter home at any time, so they could not keep her. She said she guessed she would stay any how, and hopped out of the buggy. The farmer thought she was an escaped lunatic, and was about to shut and lock the door in her face when the house dog came along and recognized the lady as his young mistress.

It was impossible to satisfy her parents and sister of her identity, so remarkable was the change in her appearance. In her pocket she had two sections of jaw bone, each containing three teeth, which explained how the change had been made. The operation is quite common now, but at that time it was rare. In this case there were three more teeth on either side of the lower jaw than usual, and as they grew they caused the jaw to project forward. At birth the lower jaw was but little longer than the upper. The surgeon merely resected the jaw on both sides by cutting out a section on either side containing the extra teeth, cutting out one in front to make the jaw narrower and bringing the ends of the bones together. It was simple enough, but the country people lay awake of nights thinking about it.

Another young lady who, when a mere child toddling around, had her neck badly scalded by pulling the coffee-pot off the breakfast table, and afterwards carried her head greatly to one side, went to see the doctor. Without so much as asking her consent he severed the contracted muscles; snipped a piece out of her shoulder, fitted it in,

tied up the wound, and told her if she would hurry she would catch the next boat for home.—*Pittsburg Despatch*.

Some of our older readers, perhaps, can remember the late Doctor Hullihen. And, if our memory is not at fault, both the operations referred to in the above newspaper paragraphs were described minutely in the *American Journal of Dental Science*. Dr. Abram Robertson who was some time with Dr. H., said that much of this surgical reputation was due to the talent and skill of a local surgeon, who was somewhat eccentric, and not successful in gaining a liberal patronage. Others maintained that a part of his fame rested with Dr. R. himself, who was an expert in devising and making the necessary apparatus for adjusting and holding in place the parts involved in the operations. But genius is generally criticised, and applause is given grudgingly. It was pretty evident that Dr. H. was a surgical genius; and we believe time has not clouded his fame.

It is needless to say that the operations are far from correctly described in the newspaper article. The "three more teeth on either side of the lower jaw than usual" is a phrase found in the writer's imagination. And in the plastic operation, the patient didn't take the first boat home.

When Robert Burns saw a louse on the bonnet of a finely dressed young lady at church, he prayed, in her behalf, for the ability to see ourselves as others see us. By an occasional item from the laity we may find how they see us, or rather, what they think of us.

Probably a majority of dentists now in practice have not before heard of Dr. Hullihen. Such is fame.—*Ohio State Journal*.

Children's Teeth, and Parents.—Dr. Barlow, says: I think dentists should impress on parents the necessity of filling the deciduous teeth of their children. Parents generally labor under the false notion that it only incurs an expense and does not amount to anything; they think it is money thrown away, almost, and in a great many instances the dentist, in order to curry favor and make a point with a patient, leaves the parent under that impression. One excuse is that filling the deciduous teeth subjects the child to considerable pain—more than extracting them does. But if dentists would take the trouble to explain to parents the necessity of retaining the deciduous teeth till the permanent ones are ready to appear, I think, in a great many cases, they would fill the deciduous teeth where they now extract them.

The Dental Department of the Iowa University, considering its brief existence, had a successful course last winter. There were sixteen graduates.

HOW TO IMPROVE TOOTH STRUCTURE.

DR. W. D. KEMPTON.

[A Synopsis.]

Cervantes said: "I had rather they had torn off an arm, provided it were not the sword arm, for thou must know, Sancho, that a mouth without teeth is like a mill without a stone, and that a diamond is not as precious as a tooth." There has been and is now said a great deal on this subject, and what I may say will not be new to you. In the midst of discussions as to what method and material are best for filling teeth, we hear it said the teeth are poor in quality, owing to a lack of phosphates in the food, and that these can be supplied by an oatmeal and graham flour diet. But this seldom seems to meet the approval of the patient, and the stomach soon tires of it. The fault lies in the bad cooking of the cereals, as the oatmeal, cracked wheat, etc., are put in a great quantity of water, and boiled and stirred till the resulting mass is anything but palatable. It is better to cook them in a water bath, with but little water, and thus no flavor is lost and the food can be taken with relish. Defective assimilation is often responsible for poor teeth, even though the diet be good. Assimilation is that process which turns grass into hair, when eaten by cattle, and into wool by the sheep; it is to the body what the workmen are to the building. Sunlight stimulates assimilation, and we should have more of it in our houses, on the same principal that prompts the florist to supply abundance of it for his hot-house. Bodily exercise creates a demand in the tissues for their proper nourishment, and that exercise is best which is combined with pleasure. Sunlight, fresh air and exercise are the factors that make good tissues out of good food, and they are all as necessary for the production of good tooth structure as they are for the body generally. A local condition is the free use of the teeth, as an organ well used develops better than one not often called on, so that the mania for chewing gum among children is rather to be encouraged than condemned. Among unfavorable influences for the proper development and nurture of the teeth is heredity, but that we cannot control. Over-stimulation of the young brain in mental studies and tasks at school is to be frowned down, as stimulation of brain in the young is always at the expense of their bones and muscles, the teeth being like chalk and the muscles almost *nil*. In conclusion, the essayist urged that the best way to induce the formation of good teeth is to nourish the body generally, and the organs of mastication will share in the summing up of the result.—*Ind. Practitioner*.

The Baltimore College of Dental Surgery has just closed its forty-sixth session. There were seventy-nine matriculates.

CLIMATE, FOOD AND ASSOCIATION IN THEIR EFFECT ON TEETH.

DR. CHARLES A. KINGSBURY, PHILADELPHIA.

While food is, without doubt, the most important factor in the changes evident in tooth structure, it has not, in my judgment, the influence generally ascribed to it. The evidence clearly indicates that the teeth of man developed in tropical climes are equally as perfect in structure and form as those who dwell in Arctic regions and consume a greater quantity of carbonaceous matter. And this observation holds good throughout all changes of temperature. An extended examination of the skulls of all nations, from the extreme of heat to the extreme of cold, and from the lowest savage to the most cultivated civilized race, leads to the conclusion that the nutrition of these organs proceeds, under all varieties of food, to the same end. The very finest dentures I have ever examined have been those of the South Sea Islanders; and almost equally as good have been developed in the most northerly tribes. I am now considering structure, and not caries. That comes under entirely different laws, and must be separately discussed. I am aware that the examination of dentures long deprived of their life-force is in some degree liable to lead to erroneous conclusions, but after eliminating all causes of error, the fact still remains as stated. If it be conceded that all varieties of climate, food, etc., tend to the same general result, then it becomes a question whether we can materially effect tooth-structure by the presentation of inorganic materials for assimilation. The laws governing nutrition are but little understood, and I am not prepared to advocate or refute the favorite idea of some that the density of structure can be increased by a forced nutrition in the life of an individual. That this can be accomplished through the slow but refining processes of inferior organism must, I think, be clear. It must be acknowledged that while climate, food and associations have marked effects on form and structure, they cause no material change in density, unless of a temporary character; that as development proceeds in harmonious relationship with the various changes, it follows as a natural result that any localized interference will find an equilibrium as these temporarily destructive forces are eliminated. This applies, however, only to the action of a certain general law, and not to the special destructive effects witnessed in caries. There must be a broad distinction made between caries, the result of imperfect structure, and that occasioned by other causes. It is a comparatively easy thing to map out here a place and there a locality where caries progresses with marked rapidity or with extreme slowness, but if the condition of structure be not regarded as a factor, the observations are valueless, if by them it is intended to prove that the teeth of one section are predisposed to caries and those of the other free from it. When it is asserted that

one class is more liable to caries than another, it does not necessarily follow that that class has more imperfectly developed teeth than the other which is less affected. It simply means that the progress of caries is mainly due to causes above and beyond mere structure. Its progress, depends, first, on the density of structure; and, secondly and mainly, on a myriad of external and possibly entirely local causes. The opportunities afforded me for observation in Europe lead to the positive conviction that climate acts only in the mode and to the extent previously stated, and is only one of a legion of influences that operate to weaken structure, and that while a deleterious climate may prove destructive, a good or an equable one is no preservative from the effects of caries.

The general idea, that the teeth of the Americans are specially bad, is only partly true, and is confined to structure. Throughout Europe the ravages of decay are in far greater proportion, and not from any intrinsic defects in the teeth themselves, but from absolute neglect. A superficial observation would at once decide that conditions there were exceptionally bad, leading to weak formations. But this would be very far from the truth. Taking the German teeth as a standard for judgment, I have no hesitation in asserting that the structure, as a rule, is better than ours, but I do not regard the average quality as equal to our kinsmen in England. Opportunities have not been afforded me to judge of other nations to an extent warranting an opinion. While I have formed a favorable judgment of German teeth as to quality, there are large contiguous sections where this opinion could not be sustained—sections, where, if I were to judge from the general appearance and mental characteristics, I should suppose that some of the difficulties attending our own development had been theirs. As an illustration, that portion of East Prussia, formerly part of Poland, is occupied by a people remarkably diverse in all their characteristics from the Germans. Living in the same degrees of latitude and with a climate not markedly dissimilar from other parts of Prussia, they yet have mental and physical organizations very different. With finely-organized nervous structures one would look for brilliancy of intellect, and this is the rule with the educated classes, but it is accompanied by a weakness of tooth-structure very similar to the worst forms of our American teeth. This opinion coincides with that of intelligent American dentists who have labored among this class for a series of years. A thorough knowledge of the interior life of this subjugated people, present and past, would be necessary to draw any philosophical conclusions. Magitot acknowledges in his discussion of the marked differences of various parts of French territory in respect to their liability to caries, that the reason for this difference is not very clear. While denying the possibility of inheriting

caries, he recognizes the fact that anatomical peculiarities come under this law, and seeks an explanation from this source.

In this country, where opportunities for observations on various races are more extended than in any other, it has been observed that, even with the exceptional good character of the teeth of the Celtic race, they rapidly succumb to influences found here. Whether these are to be looked for in climate or in food, or whether both combined produce a change in the secretions, is still an open question. The solution of this, it seems to me, must be found in local disturbance that finally ends by the hereditary laws before spoken of, in anatomical defects, which in turn, by the same law, reproduce under better conditions more perfect dentures.

Nations become, through generations, a condensation of the conditions by which they are surrounded ; in other words, man is so much atmosphere, so much food, so much association, and, in time, so intimate does this relationship become, that any diminution of these particles is just so much toward starvation. Deprive the body of its accustomed nutrition and just to that degree it withers. We are accustomed to believe that man is the most readily acclimated of all animals. We mean by this that he can accustom himself to any variations of climate ; but, while this is in part true, it is true only as regards atmospheric changes. Those other elements that enter into life are not so readily accommodated, and it requires a long series of years to accomplish it. My experience abroad leads me to the conclusion that every American born has to undergo a process of slow starvation there, and that not because he cannot eat the food, but because it fails, measurably, to afford nutrition. While the German will flourish on his brown bread and coffee, the American starves on the best *menu* of the hotels. So universal is this that a comparative state of health can only be maintained by change. My own experience and that of every member of my family was that, whether the food was prepared well or ill, palatable or otherwise, there was always a feeling on rising from the table of a system unsatisfied. A distinguished physician of Leipzig remarked to an American patient : " You Americans cannot live in Germany ; you are all starving for something in the air or food not obtainable here." In time, of course, a change is effected, and then the man becomes, to that extent, a German, and loses the pure American type, and this is greatly increased in his children. The proof of this assertion is all round us. A very superficial examination of the children of German parents amply demonstrates it. In many cases the pure German type is lost in one generation. What is true of the German is equally true of all others. Herbert Spencer remarks that " When a dweller in marshes lives in an atmosphere which is certain death to a stranger ; when he sees that the Hindoo can lie down and

sleep under a tropical sun, while his white master, with closed blinds and water-sprinkling punkahs, can hardly get a doze; when he sees that the Greenlander subsists comfortably on his blubber, and the Neapolitan on his macaroni—but that either would be made miserable by an interchange; when he sees that in other cases there is still this fitness to diet, to climate and to mode of life; even the most sceptical must admit that some law of adaptation is at work. Nay, indeed, if he interprets facts aright, he will find that the action of such a law is traceable down to the minutest ramifications of individual experience. * * * This universal law of physical modification is the law of mental modification also.”

An interesting field is open for future observation in regard to the changes in teeth of those who have kept the race pure. There is one that ought to give rich results, but one to which I have had limited access—the Jewish stock. Close observation here in different countries would enable us to arrive—as near as we will probably ever be able to do—to the proportionable influence on teeth of climate, food, and surrounding associations.—[Odontological Society of Pa.]

Dentistry as a specialty of medicine has been much discussed; but the one main fact for us to recognize now is, that whether we will it or not, whether we are really medical specialists or only dental prosthetists, we are, to all intents and purposes, a separate and independent profession. In reality the position of the two professions toward each other is that of simple ignorance of each other's existence. Medicine does not recognize a relationship with dentistry, nor does dentistry recognize medicine. In theory we may be a branch of medicine, but in fact we are not. The two professions simply ignore each other. Ours is a surgico-artistic profession, and we can make nothing more out of it. Mechanical occupations constitute the largest part of our duties, much as we may dislike to admit the statement. It is true that many sciences, medical and others, contribute toward the making up of our *ensemble*, but our work is, after all, more mechanical than medical, more prosthetic than therapeutic, and the sooner we accept our position as an artistic and surgical profession, and let go the claims to things with which we have little concern, the sooner we shall attain to a true and honorable position.

EDITOR ITEMS OF INTEREST:—“Every one who has *repaired* an artificial denture on rubber has noticed that the *joints* turn *very dark*. Can this be stopped in any way?—Respectfully, IGNORAMUS.”

[If the joints of the newly placed teeth are kept clean from rubber this darkness will not appear. This can be accomplished by covering the joints on the inside by a very little plaster—or better yet, oxyphosphate.—EDITOR ITEMS.]

PROFESSIONAL SERVICES AND FEES.

DR. EDWIN T. DARBY.

[Part of paper read before the Central Dental Association of N. J.]

There is, perhaps, no calling in life where innate honesty is more essential than in the practice of dentistry. The dentist can conceal his mistakes and blunders almost as well as the physician; if he be shrewd as well as dishonest, he can deceive his confiding patients at every turn, and it may be months or years before they are aware of it.

During the last quarter of a century great changes have been made in the methods and value of service in our specialty. The introduction of cheap bases for artificial teeth, and the increase of more than eight thousand practitioners of dentistry, have had a tendency to lower the standard of excellence, and to materially affect the price of dental operations. I am not prepared to say that the introduction of rubber, celluloid, and other cheap bases has been a curse to the public; but I am strongly of the opinion that thousands of valuable natural teeth are annually sacrificed, and their places supplied by miserable plates at miserable prices. So great has become the competition in the country, and even in some of our city offices, that whole dentures are furnished at the small sum of ten dollars.

I met a gentleman, a few weeks ago, in the interior of New York, whom I had known twenty years ago as a reputable practitioner. He said that so great had become the competition in his own vicinity that he was now making whole upper and lower sets of teeth for ten dollars, and others were doing it for less. Gold fillings were inserted for one dollar, and amalgam and other plastics for fifty cents. The demand was for cheap work, and there were more than enough dentists to supply the demand at those low rates. So little skill is required in the construction of these cheap bases that in the past the blacksmith has forsaken his anvil, and the joiner his plane, and with forceps, impression cups, and vulcanizer, he has itinerated the country, supplying the demands of the people.

In mercantile pursuits competition is said to be the life of trade, but its twin sister, over-production, has been the death of many tradesmen. When the supply exceeds the demand, prices are low, and often ruinously so. Our country is now experiencing the baneful results of over-production. Factories and mills are being closed, and coal mines are being flooded, and the laborer and operative are suffering for employment. History has shown that whenever there has been depression or a panic in business, the professions have had a large influx. Our medical and dental schools have opened the present year with large classes, and will continue to do so till the depression ends.

Of late there seems to be a growing belief that the dental profession offers one of the most lucrative fields in which to labor, and it

s sometimes amusing to know the estimate which people place on our work and our pay. A business man, who had several sons approaching manhood, called on me recently to ask my advice about one of them whom he thought of educating in dentistry. He said his son leaned toward dentistry, and as it seemed to be an easy life, with big pay, he himself believed that he could not do better than to start him in the "business." My reply to him was to the effect that if he expected his son to have an easy life with a fat purse, he had selected the wrong calling. The two conditions are incompatible. The men who have been successful in dentistry have led laborious lives, sacrificing health, recreation and enjoyment, and, as a rule, dying an untimely death.

The average dentist is poor; poverty sat by his cradle as he was nursed in it, was his playmate while he learned to live by it and his companion through life, often following him to his grave.

If we have fine homes and the comforts which others enjoy, it is because we are diligent in business, prudent in expenditures, and conscientious in our dealings with those who employ us. Notwithstanding we have trials and perplexities (and I sometimes think the dentist has more than others), it is encouraging to believe that the more intelligent of every community appreciate the laboriousness of our lives, and pay our fees cheerfully.

Professional men ought never to compete in anything save excellence.

The fee system of Europe has some features which commend it to our American practice, but it has defects which it is to be hoped will prevent its adoption in this country.

The English fee is a guinea for consultation, extraction, and ordinary fillings or "stoppings," as they call it. For the minor operations it would seem to us an excessive charge, but the expectation is that the average will be made good in the more prolonged or difficult operations. Having a given fee for each sitting, whether it be long or short, the tendency is to make it as short as possible. It is not an unusual thing for a dentist in full practice in England to see from twenty-five to fifty patients in a day, receiving from each a guinea. An American dentist would not feel that he could do justice to half that number. Patients of mine, who have sojourned in England and been in the hands of English practitioners, complain at the aggregate cost of this system of charging. Assuming that English operative dentistry is equal to ours (which it is not), the cost to the patient would be greater than the charge of the average American dentist of ability for a similar amount of work.

The French and German-American dentists have a similar fee. The usual fee in France is a napoleon, or about four dollars American.

money. The German dentist proper has a mixed way of charging, but the German-American dentist has a minimum charge of fifteen marks, or about three dollars and seventy-five cents of our money, and often doubles it for a sitting of any considerable length.

It is to be presumed that in countries where amalgam and the plastics are more commonly used by the better dentists, this system would work better than with us, who use a larger percentage of gold for filling teeth. Perhaps the most just way of fixing one's charges is by the hour, or the time system, and the testimony of those who have tried it for years is to the effect that it is more satisfactory to the majority of patients. In cities, and among practitioners who confine themselves exclusively, or nearly so, to operations on the natural teeth, it has much to commend it. It insures to the dentist pay for his time, and time is his stock in trade. It insures to the patient painstaking work, because the operator has no selfish motive to hurry. It prevents misunderstanding in the matter of accounts, for the patient can keep his own reckoning. It is more professional, for it is a charge for time and service, and not for material. It inculcates the adage that time is money, and so prevents loitering and needless conversation. But you tell me that the dilemma is unchanged, and how is the dentist to estimate the value of his services per hour? One man is slow in his movements and gentle in his touch; another is as quick as lightning and accomplishes much more in a given time; hence his services are cheaper to the patient if the price per hour be the same. I am free to admit that there is force in the objection, but the price per hour need not be the same. Every man has a pretty correct idea of the value of his time. He knows, or should know, what income he should receive for a year's service. Let us occupy a moment in details. Of the three hundred and sixty-five days in a year, fifty-two are, by custom, set apart as days of rest, leaving three hundred and twelve days, exclusive of holidays. But no dentist should, and few can, pursue their calling without periods of recreation. A month is too little, but it is better than nothing. Let us subtract, then, forty days for pleasure, leaving two hundred and seventy-two working days. The average dentist, in full practice stands at his chair seven hours per day (if he does more he dies earlier), making a total of nineteen hundred and four hours. From this a liberal reduction must be made for unavoidable delays and unaccomplished purposes, reducing the number of paying hours in a year to about eighteen hundred and fifty, which at five dollars per hour would amount to \$9,250; or at ten dollars per hour to \$18,500. These fees may seem high to some, or low and reasonable to others. They are about the average prices charged by dentists, whether it be by operation or by time, and are as low as the public can expect from professional men who devote their lives to the task of

saving teeth. Few men engaged in our calling have amassed a fortune, or even a competence; but if the facts were known, it would be seen that the men who have been uniform in their charges and methodical in calculating the value of each moment and hour are those who have accumulated most and served the public best.—*Independent Practitioner*.

FERMENTATION.

W. S. ELLIOTT, M.D., D.D.S.

Mr. Editor:—Prof. Engel is quite correct when he asserts that fermentation “depends on the vital process of bacteria, or other micro-organisms.”

Taking a broader and more philosophical view of the phenomena of life, we can come to no other conclusion than that all observant changes are but the sequences of diverted energy which has had its differentiations from “the beginning,” and its varied manifestations consequent on environment.

There is no “process” in death; death is void of process—it is a negation, equivalent to the absolute—of stillness, of coldness, of annihilation; conditions unthinkable and, therefore, undemonstrable.

While fermentation is usually spoken of as a chemical process, yet this embraces only a part of the truth. All vital activities include chemical affinity as well as other forms of force in their proportion of embodiment. The fermenting body is a living organism, always fulfilling the principal vital requirements of respiration. Ferments can only subsist in a menstruum capable of furnishing the required nutrient elements. It is through these given activities that the fermentable body is transformed in its properties, but which, as is the case in all forms of expended force, are conserved in the products of the change.

The yeast cell generates and multiplies itself in the presence of sugar, which is converted into alcohol and carbonic dioxide, and the peculiarity of the process is not equivalent to any proceeding incident to the laboratory.

As with yeast fermentation so with the changes wrought by all forms of micro-organisms. These are the vital agents which feed on the products of the accompanying disintegration.

It is probably this metamorphosis of the fermentable body—the necessarily proteid substance—that Prof. Engel refers to as being the interrupted “mechanism of life.”

When this is carried to such an extreme, through purely chemical reaction, as to favor the existence of septic organisms, then do we have that condition recognized as putrifaction.

PULP-CAPPING AND TREATMENT OF PULP-CANALS.

DR. J. H. BEEBEE, ROCHESTER, N. Y.

[Read before the Seventh and Eighth Districts Dental Societies, October, 1884.]

The old subject of pulp-capping and treatment of empty nerve canals is well worn, and it is very difficult to advance in this direction anything new.

A pulp-cap must be disinfectant, antiseptic, antiphlogistic, and a non-conductor of thermal changes; it must also fit the surface covered, accurately, and adhere to it, at the same time it must be absolutely unyielding.

For the purposes of disinfection, and as a destroyer of germs of tooth-decay, regardless of the nature of the latter, I have found nothing that is more efficient than the old perfumery of the dental office—creasote.

As an antiphlogistic and antiseptic remedy, iodoform has given the best results. I have seen the most obstinate cases of alveolar abscess promptly succumb to its soothing influence, when everything else had failed; pulps in a high state of inflammation have knelt before it, and cavities so sensitive as to render excavation impossible have been rendered comparatively painless when this drug has been held in them for a time, beneath a temporary filling.

It will be remembered that one part of the definition of the pulp cap as given, calls for a non-conductor of thermal changes. The disastrous effects produced by the action of heat and cold on the pulp in close contiguity to a metallic substance is too well known to all of us. Perhaps the best non-conductors are those of a vitreous or glassy nature. If an attempt is made to melt a piece of any of the rosins, it will be observed, that while the surface of the piece is liquefied the inner portions will remain brittle and hard, showing that this form of force is not readily conveyed by the atoms of the material. Among the hardest of the rosins we find gum copal; it possesses the desirable property of solubility in one of the most volatile of substances—sulphuric ether. Another substance highly possessed of the property of resisting changes of temperature, is the phosphate or oxychloride of zinc, especially the former.

It is, perhaps, needless to say that no pulp should be capped while in a state of inflammation, it must, if diseased, show a great readiness to return to health, or give good evidence of healthy condition before the operation is performed. Having carefully removed all extraneous and decayed matter, unless a small amount of the latter be left immediately over the point of exposure, the cavity should be thoroughly saturated with creasote, and wiped dry; then a saturated solution of iodoform in sulphuric ether should be introduced, and dried by permitting the solvent to evaporate. This is followed by copal ether

varnish, of a syrupy consistency, which is to be dried thoroughly with the aid of a hot-air syringe. If the point of exposure is large, it is my custom before the varnish is dry, to introduce a piece of thin linen writing paper, cut the shape of the floor of the cavity, which is to be pressed down with an instrument till it adheres in every part; then I re-varnish and dry as before. Over the whole is to be applied and allowed to harden, a thinly mixed paste of oxyphosphate of zinc. In case of large exposures or diseased pulps, it is best, of source, not to finish with metal at the same sitting, the operator using his judgment as to completely filling the cavity with oxyphosphate of gutta percha in the case of temporary completion.

The great value of the varnish is, of course, its non conducting property, and the certainty with which, without pressure, it will adapt itself to the surface covered. But another and very great benefit is the protection of the sensitive tissue from irritant action of the phosphoric acid in the plastic material, and specially is this the case when the paper before mentioned is used.

Have we not in the above that which we most desire—a cap that seals hermetically: that is a non-conductor of heat; that is rigid, and at the same time an arrester of decay, and soothing to the pulp, and preventive of all inflammatory action?

The same remedial agencies are used in the treatment of pulp canals, and with satisfactory results. The most obstinate cases of alveolar abscess, either hidden at the apex of the root, or discharging through a fistula, rapidly improve when iodoform is presented to them. When all diseased action beyond the apical foramen has been removed, or is under control—and even sometimes when it is not, if there is a fistula for discharge, and the health of the patient is good, the canal should be thoroughly cleansed and dressed. It is not necessary to enlarge the canal unless it be extremely small, and it is desired to use a screw or other appliance for retaining a filling or crown. When cleanliness is ensured, apply creasote as in pulp-capping, wiping thoroughly with cotton, wrapped in a nerve instrument. Next apply the ethereal solution of iodoform, and dry thoroughly; now wet with alcohol, and having previously cut some slim pointed pieces of gutta percha, force them, one at a time, into the canal till it is filled. The alcohol will act as a lubricant, and will be forced out of the way, and in a short time the gutta percha will assume a consistency almost as firm as though it were solid. As I write, the thought has struck me that, perhaps, it might be well to use a thin sandrach varnish in place of the alcohol, and that would certainly make a solid and perfect plug.*—*Odontographic Journal*.

*Since the above was read, the writer has repeatedly used the varnish with the best of results.

"STRAINING AT A GNAT."

DR. CHAS. E. FRANCIS, NEW YORK.

A paper was recently read before the Central Illinois Dental Society, and published in the March number of the *Ohio State Journal*, on "The Poisonous Effects of Amalgam Fillings."

The author assumes that "the poisonous effects are produced by evaporation of mercury from the fillings, which is going on at all times under ordinary temperatures." Also, that "mercurial poisoning manifests itself variously—sometimes immediately on inserting the filling, and again, not for years." "The symptoms in the first instance," he observes, "are characterized by a metallic taste and peculiar sensation, similar to that experienced in holding both poles of a galvanic battery; and particularly is this the case where the amalgam is in close contact with other fillings, or when touched with a silver fork." And further, that similar results are also produced in partaking of "some kinds of food." According to the views of the essayist, "a shock is experienced," and this "shock" is manifestly a liliputian shower of mercurial poison!

In proof of this "theory," a case is cited where, in Philadelphia, some tempting but treacherous "raw oysters" were incautiously introduced within the buccal cavity of a too confiding individual, wherein was "a large amalgam filling which had been recently inserted, producing a shock followed by pain so intense that the filling had to be removed."

Mercy on us! What *does* such sort of testimony amount to? Similar "shocks" and "pains" are of frequent occurrence where no amalgam is present. With tin and gold fillings such experiences have been related and re-related over and over again, for scores of years, as every dentist must know. A "raw oyster" coming in contact with one of our own incisors at a commencement supper in this same city of "Brotherly-love," gave a shock that produced unutterable agony; and that filling also "had to be removed." In this case, however, the tooth contained a "recently inserted" *gold* filling, and there was no amalgam whatever in the mouth. Perhaps the luscious bivalves of the Delaware Bay region partake largely of the nature of *electric eels*, and resent with a stinging farewell rebuke the indignity of being served in a nude and vivisected condition on the half-shell.

We have also on various occasions experienced thermal shocks in other teeth filled with the "precious metal," when eating fruits or taking into the mouth food or drink of unsuitable temperature, and have felt galvanic shocks when silver, tin or other metals have come in contact with the gold. Why then should not similar shocks occur where *amalgam* is employed?

The average amalgam filling is larger than that of gold. The

larger the filling, the greater the danger to be apprehended from sudden thermal changes—the prime cause of pulp irritation and pulpitis. Large gold or tin-foil fillings are quite as likely to convey thermal or galvanic shocks to pulps nearly exposed as fillings of amalgam; and such results have proved quite too common in the practice of those who utterly ignore plastic stoppings. As a rule, it is unsafe to allow metal fillings of any sort to be placed in close proximity with living pulps, excepting perhaps, some of the metallic oxides.

We are further informed that “the most common pathological condition as a result of mercurial poisoning is *ptyalism*.” The normal flow of saliva is given as “three pounds per twenty-four hours,” and if the flow exceeds this amount we have an “abnormal condition.” Our Chicago friend also states that, among his patients, those having several amalgam fillings, or both gold and amalgam fillings, “are almost always afflicted with *ptyalism*!”

It is reasonable to presume that human nature is pretty much the same in the different sections of our country, especially in *functional* peculiarities, yet we occasionally hear strange and wonderful stories concerning Chicago folks—especially the “girls”—and this may be among their peculiarities. To state *precisely* the normal flow of saliva hereabouts, would be preposterous. We have *all* conditions of saliva flowing “in these parts,” and crackers are often eaten for a wager?

While some mouths might remind one of a summer drought, others appear more like an autumnal deluge. Fillings of amalgam, with or without the gold, seem to make precious little difference in regulating this flow, and the closest observations of years fail to reveal such marked influences. And in regard to the conditions of the gums, amalgam has just about as little to do in this respect. The worst appearing cases of diseased gums that have come within the scope of our observation, have been in mouths where no amalgam was found. *Imagination* will conjure many strange notions, and strange notions are wonderfully prevalent in these days. As yet, neither galvanic nor thermal shocks have been universally labeled “poison,” and even though it is possible that constant galvanic action may favor decalcification of enamel rods, its influence on the general system has not been considered *baneful*. Galvanic doctors, galvanic combs, brushes, belts, bracelets, rings, plasters, baths, etc., are advertised as “*aids* to health,” hence we observe that imagination runs blindly in either direction.

In considering the decrease in weight of an amalgam filling by the evaporation of mercury, which (it is stated) is going on little by little for years, we think it requires the biggest sort of fancied conjecture to perceive any marked effect exhibited on the general health, and it is a question of very grave doubt if any such evaporation takes place,

or any perceptible diminution in a filling can be demonstrated. As far as *experiments* are concerned, to offset this "gaseous" theory, we can refer to experiments of a most elaborate nature made some years ago by Dr. E. A. Bogue, of New York, the late Prof. Hitchcock of Boston, and others, who, sparing neither time, labor nor expense, for many months devoted themselves to the task of experimenting with amalgam in order to ascertain if any perceptible loss could take place in stoppings of this material when inserted in the teeth. The fact was clearly demonstrated, that the degree of heat requisite to produce mercurial vapor could not possibly be tolerated in the mouth of a living individual; also, that no solvent of amalgam pervades the precincts of the oral cavity.

Reports of these experiments were published in the *Dental Cosmos*, as transactions of the *N. Y. Odontological Society* at its December session for 1874.

Some individuals, overstocked with effeminate credulity, suffer constant fear, lest in some mysterious manner they may get poisoned. With them every real or fancied ailment is attributed to either "malaria" or "mercury." These two formidable "bugbears" are brought out in turn, and each covers heaps of ignorance. The probabilities are that not once in ten times are they the *real* cause of mischief laid at their doors.

When peridentitis or alveolar abscess proceeds from the root of a tooth in which there is an amalgam filling, it is too frequently diagnosed "mercurial poisoning." When, however, the same conditions appear where the stopping is of gold, the trouble is dignified by the term "neuralgia." Either diagnosis is, of course, equally senseless.

A New York physician of the Hahnemann type, one who boasts of a large practice, once informed us that at an early period of his life a "*villainous* country doctor" gave him a dose of calomel, and as a result his teeth had been "full of mercury ever since." A careful inspection of the mouth gave no evidence of mercurial mischief. A pulpless superior molar, containing a large gold filling, had at times given him slight annoyance, but all the other teeth and gums were in a remarkably healthy condition. The calomel notion was exceedingly "vapory."

Another physician of the same school, in his vain endeavors to benefit a juvenile patient by administering ineffective "high-dilution" agents, declared that the "potency" of his "*remedies*" was counteracted by the presence of amalgam fillings in the child's teeth, and that the child was suffering from "mercurial poisoning." Subsequent examination by the dentist who had caused the "mischief," disclosed the fact that the child's teeth contained five stoppings of white gutta.

percha, and one of tin foil. All were in excellent condition, and no amalgam had ever been used. The feelings of the almost frantic mother were appeased, and the idiotic dispenser of pellets was advised to shoulder his own foolery, instead of falsely charging his ill-success to the operations of the dentist, whose reputation with this family he would have thus jeopardized.

A prominent and much esteemed dentist of New York treated and filled a devitalized superior molar with a stopping of oxy-chlor. of zinc. As the root-canals were closed too soon, peridentitis followed, and the cheek became much swollen. The dentist was sharply denounced for introducing a filling of a poisonous nature; "metallic poisoning" was the diagnosis of the leather-brained attendant, and another dentist was visited, who did his best to correct the erroneous impression, and to lull the storm of indignation which the operation and its effects had caused.

Cases similar to the above are by no means uncommon, and sensible dentists, instead of encouraging such ridiculous notions, should strive to dissipate them. Many individuals defer visits to the dentist, till driven to seek relief from relentless attacks of odontalgia. As a rule, such people desire to retain their teeth, and expect their dentist not only to relieve the immediate pain, but to so treat them that no after trouble is possible. Indeed, they presume that after such miserable offenders are once "fixed," they are better than ever before, and thoroughly insured from further annoyance for a lifetime! If the pain recurs, instead of blaming themselves for their unpardonable neglect, they are sure to make a scape-goat of the faithful dentist, who did all in his power to benefit them.

Our Chicago brother closed his paper with this trite paragraph: "The profession and the public will welcome a filling which shall take the place of amalgam." To this we heartily respond, "amen."

We candidly confess, that though cases occur where amalgam is our last resort, we never employ it without a degree of reluctance, and for the simple reason that it tends to slightly bulge from cavity margins.* This does not always happen, as is proved by the exhibit in many instances where it has remained perfect and unchanged for years, yet, where such a tendency is *possible*, it lessens confidence. So far as injury to the system is concerned by "mercurial poisoning" we believe this to be *sheer nonsense*. As soon would we believe that all the fishes that sport in the pellucid waters of Lake Superior would become distressed should we cast therein a grain of calomel, or a spoonful of salt.

The majority of our ablest physicians consider mercury the "anchor of safety" in many cases which they are called on to treat, and

* We think this is a mistake.—[ED. ITEMS.]

prescribe it day after day in doses of from two to fifteen grains, whereas, all the possible waste in an amalgam filling through a lifetime from "evaporation" would be so exceedingly minute that only the most exalted imagination could conceive it.

In accounting for many of the "ills that human flesh is heir to," the imagination sometimes gets terribly strained in gigantic efforts to "swallow a gnat," while "camels" are engorged with little ceremony. Wasting one's efforts over such vapory, visionary conjectures, is too much like grasping at the shadow of a shadow, or a futile searching for "the infinitesimal abstraction of ethereal inanity."

Verily—"a much ado about nothing!"—*Ind. Practitioner*.

SOME CHANGES REQUIRED AT THE HANDS OF OUR TEETH MAKERS.

L. P. HASSELL, CHICAGO.

The necessity for full sets of gum teeth, to be soldered to the plate, no longer being necessary (the attachment by pink rubber being far preferable on all accounts), the use of gum teeth is now confined to *partial* cases. These require, in consequence of the shrinkage of the gum adjoining the teeth, a *short gum below the neck of the tooth*. This applies equally to incisors, canines, bicuspid and molars. It is therefore seen that only gum teeth of this character are needed. This would largely reduce the assortment needed at any depot.

The same rule applies to single gum teeth for rubber work.

Bicuspid and molars should be darker than the incisors. Very light back teeth are never needed.

The *shoulder*, so often made around the neck of plain teeth, is not only useless, but, as the rubber gum cannot be formed as it ought to be, it is so objectionable that it has to be ground away, as the rubber gum cannot be formed as it ought to be.

The great **need** in porcelain teeth is more life-like colors. There has been an absolute retrograde in this respect.

White's and Justis' teeth, in their early days, were far superior in color and more life-like than in later days. Why they do not continue to reproduce those effects, perhaps somebody can "rise and explain." I find it difficult to match the natural teeth, in partial sets, with these dental depots to resort to.

What is most lacking are those beautiful shades of blue, with the yellow well blended, and a certain translucency at the point.

I am well aware that, to a certain extent, *strength* must be sacrificed in order to secure translucency; but we used to get it and the teeth were strong enough.

Not having any use for "gum sections" I have no fault to find with them.

DENTISTRY IN EUROPE.

DR. C. F. W. BODECKER, NEW YORK.

While in Europe, this last summer, I observed a good many hundreds of teeth, and learned something with respect to prices of fillings. I went into the office of a dentist in a small town in the northern part of Germany, and in the course of conversation he said: "I have to work pretty hard; my fees are very small, and in order to make twenty-five marks (about six dollars), I must have a good many patients." I asked him how much he charged for a gold filling, and he replied that he did not insert any, not being able to get a paying price for them. "But," I said, "in case anybody should come and offer you your price, and asked to have a gold filling inserted?" "Well," he said, "nobody ever will come; or if they do come, they say: 'I should like to have a gold filling, but they all tell me that if I do it will fall out, and that a black filling will stay; so I would rather have a black filling;' and the consequence is we put in amalgam fillings altogether, whether the cavity is in front or back." "How much do you charge for amalgam fillings?" "One mark." (About twenty-five cents.) "And what is your price for gold fillings?" "We don't get more than two marks."

He told me he bought an eighth of an ounce of gold when he began practice, eight years previously, and three-quarters of it was on hand yet. He had more to do in making artificial teeth than in filling the natural teeth, as the people in that part of the country believed filling did not do any good, unless they went to an American dentist; the Americans had some funny way of getting round the patients, and could induce them to have gold fillings put in. At all events, he believed it was not so much the skill of the American dentists, as their manner of persuading the patient to have it done, that made them more successful. He told me he was pretty sure he could put in a gold filling just as well as I could, if he could only get the opportunity and the price for it; but the difficulty was the people would not pay for it, and so he let the gold lay in the drawer.

The fees in the larger cities of Europe were a little better. I met some American gentlemen there who charged for the smallest service fifteen marks; and those gentlemen, when they have a cavity of more than ordinary size, call it two, or three cavities, and double or triple the price. I was very much astonished to see in that way some of the dentists in Europe get quite as much money out of their patients as we do in America, and in some instances a great deal more. On the other hand, German dentists are very moderate in their charges, though some of them are very skilful; they do excellent work, yet they cannot obtain reasonable fees. One gentleman, of whom you have heard, who does almost nothing else than putting in gold fillings,

and who inserts a great many of them, cannot get more for a gold filling than about ten to fifteen marks, or two and a half to three dollars; or four dollars for the largest fillings. In the same city there is a gentleman who was for some time in America, and though he is not a very good operator—I have seen several of his patients in that city—he is able to obtain much higher fees than the other dentist, simply because he has been in America. So it seems that an American name draws, so far as dentistry is concerned.—[Central Dental Association of Northern New Jersey, in *Independent Practitioner*.]

AMERICAN TYPE OF TEETH.

DR. CHARLES A. KINGSBURY, PHILADELPHIA.

While not prepared to assert that Americans are fast tending to a condition when the *dentes sapientiæ* will become mere rudimentary appendages, it must be acknowledged that there is a change in form greater than in other nations in a very large proportion of our population, and not confined to any special locality. That such a condition exists is very clear, but it is not so clear that it indicates a permanent change. That there are causes at work to produce temporary deviations from original types is evident, and while a variation may become a fixed form in generations, there is no positive evidence that it is more than an exceptional result of an exceptional cause, and that in course of time the original type will be resumed. Similar, though not so extensive, variations may be observed in other teeth, notably the lateral. In sections of our country that have been settled for long periods, and among classes whose habits of life have been fixed for generations, these abnormal presentations are not so frequent.

The early history of our country is a history of labor; a history of change from the barbaric elements to a measurably perfected civilization. The growth from forest and prairie to cultivated farms and great cities has been accomplished in a comparatively brief period, and at the expense of the physical to a great extent. Such changes could not have been accomplished without producing extensive atmospheric disturbance, and this, in its turn, acting on the human organism, has tended to temporary disorganization. That this is true can, I think, be clearly demonstrated in all sections of our country settled within a limited period, and the effects have not been wholly outgrown in the more developed regions. If the stigma that Americans have the worst teeth in the world be true, though I do not regard it is a fact, it is evident that as the causes producing anatomic defects are removed there will be a return to original types, and by hereditary laws these will be made permanent. It is a favorite theory of the people of the older settled portions of the world that the American race is fast degenerating. But this theory has no foundation on fact;

indeed, statistics clearly demonstrate not only a superior degree of health in all the thoroughly cultivated portions, but also show that longevity is on the side of this country.

While acknowledging the fact that the mixture of races tends to irregularity in the dentures, it can only be regarded as temporary; it will be overcome through the changes spoken of, in which type-forms are arranged by the inevitable laws of growth.—[Odontological Society of Pennsylvania.]

PREPARING THE MOUTH, AND TEMPORARY WORK.

DR. L. P. HASKELL, CHICAGO.

To *save all the natural teeth* is the province and should be the aim of the dentist. But to this *rule*, as to all others, there are exceptions. Patients sometimes insist on retaining a few natural teeth, so located that they are not only useless, but are in the way of something better—in fact, interfere with the usefulness of the artificial teeth that they must wear.

As to what teeth should be left, or what extracted, should be left to the judgment of an *experienced* and honest dentist. But in general terms, I should have such teeth extracted as will make the artificial ones, that must be worn, *as useful as possible*.

Where there have been many teeth extracted, the mouth is seldom in a permanent condition under a year, and sometimes longer, as the absorption of bone is a slow process. In the meantime, the patient does not wish to be without teeth, so what is known as the “temporary” set is had. As a rule, these may as well be inserted within forty-eight hours, for the patient suffers less from soreness of the gums than when it is delayed; and if the remains of the front teeth are extracted at one time, the necks of the new teeth should be inserted in the sockets of the natural ones, presenting a more natural appearance than otherwise, as there will not be room for an artificial gum for many months, and possibly only for a very thin one at the end of a year.

Wearing temporary teeth too long often results in permanent injury to the gums, specially in case rubber plates are worn. They should in no case be worn more than two years, and generally not half that time.

Mrs. M. W. J's., report, found on another page, of the Dental Section of the American Medical Association just closed in New Orleans, will be found interesting. Though not a professional reporter, Mrs. M. W. J. rivals many whose professions are far more pretentious.

For Sensitiveness of Teeth.—Three grains sulphate atropia to one ounce of water is very good. Some use but half this proportion of water.

THE FIRST PERMANENT MOLAR.

J. H. WOOLLEY.

I am inclined to compare the first permanent molar to a waif, or outcast in the street, that is neglected through ignorance of its value. At the time when the first permanent molar is erupting, there are physical forces at work which disturb its harmonious growth. Neglect caused through ignorance of parents who think these teeth belong to the first set, plays a prominent part in their early destruction. If parents were familiar with the time these teeth usually erupt, and then placed their children in the hands of a competent dentist, a large majority of the teeth could be saved. I believe it to be a mistake to remove these teeth for the purpose of correcting irregularity. Dr. Black says: "My study of the comparative liability of the teeth to decay at the different periods of life, shows clearly, that the first molars are attacked in the first two or three years after eruption, much oftener than any other teeth. But in after years they are often attacked less than the second molar. If the first and second molars are in a fair condition at the age of fifteen, the chances for the first are better than those of the second."

The coffer-dam should always be used in making an examination of these teeth; by this means we are better able to explore the decay. Often a slight decalcification is discovered, which can be stopped by a small filling, which, if neglected, will spread and soon involve the whole crown. My treatment of these teeth is as follows: In large cavities, where the inner surface is sensitive without pulp exposure, I fill with cement, allowing this to remain in the tooth from one to six months. I am careful first to flow over the floor of the cavity the cement in a soft condition, allow this to harden, then finish with the same material mixed very stiff. When this filling begins to show wear and the patient has had no trouble with the tooth, I partially remove the cement, leaving enough to cover the floor of the cavity, and am exceedingly careful that none of the cement is left clinging to the margins of the cavity. I then fill the remaining portion of the cavity with gold and tin combined, or whatever material seems best adapted to the case. If these teeth are taken in time, and carefully watched, it will be, in most instances, the fault of the dentist, and not the teeth, if they cannot be saved.—*Ohio State Journal*.

ATTENTION TO CHILDREN'S TEETH.

Dr. O. A. Jarvis, of New York, says in his little book, *The Dentist*: "Teach the little patient, as soon as may be, to brush its own teeth, and use the pick after every meal, repeating the lesson occasionally yourself.

"In this manner I can save more teeth, using no instruments but

the brush, pick and thread (by way of instructing others to do so), than all the dentists in the city by simply performing the usual dental operations.

"It must not be inferred from what has been said that we can by any means always or in every case avoid the necessity for 'filling' children's teeth, specially at the points spoken of as being already imperfect. But when cared for as directed, the defect would be detected at so early a stage that the operation for repair (filling) would be painless, not tedious, involve but little expense, and its durability would be beyond all question.

"If they are not filled then, while decaying, the mouth will be foul and unhealthy, the lips and tongue will be irritated, often severely, by the rough and ragged edges presented; the decay will be likely to reach the pulp, causing excruciating pain, the death and premature loss of the tooth, and lasting injury to the jaws and the position of the incoming set.

"The child will not and cannot chew on sore gums and teeth; the food will be put down and out of the way as soon as possible, without the necessary preparation for the stomach, and the result is early dyspepsia with its train of horrors.

"The point of paramount importance which I wish to urge is that the teeth should be kept clean *from their first appearance through the gums*, no matter how young the child may be, even if born with teeth, as some are. They should be as scrupulously cleaned as the cheeks, the eyes, or the ears, for they will suffer more from neglect, though milk be the only food for the younger years. The brush is the only thing that will do it."

REMOVAL OF THE DECIDUOUS TEETH.

DR. O. A. JARVIS, NEW YORK.

Nature has made provision for the removal of the first set of teeth by a painless and healthy process of absorption of the roots. Almost without exception they will absorb fast enough to keep out of the way of the incoming teeth of the second set. Watchful parents are much troubled when they see the new tooth apparently crowded out of the proper line by the old one, and they want the old removed at once. This is *sometimes* necessary, but is very seldom done except by ignorance or overpersuasion; and may result in serious and lasting injury to the patient. Even *crowding* during the growing age is accomplishing a purpose. It is positively necessary that the dentist should see the child often, and do with such teeth as he thinks best, for changes are rapidly taking place which may change the position of affairs favorably or unfavorably in a few weeks. When the natural process of absorption is not interfered with, the roots disappear, and the

crown sits loosely on the gums, till it is easily removed with the fingers. This is not dying; there is no violence, disease or pain; it is simply passing peacefully away, as we ought to in good old age. But if from any cause (sometimes by accident, but generally by decay) they become dead and a source of irritation, they should be removed immediately. To retain them when nature is making such an effort to get rid of them, is unwise, and productive of much harm to the other parts.—*The Dentist*.

DIFFERENT TYPES OF TEETH.

MRS. M. W. J.

The *British Journal of Dental Science* gives the following summary from the *Southern Dental Journal*:

“The different types of teeth and forms of jaw not only are racial traits but belong to families and are transmitted by heredity: hence the importance of the study of heredity in dentistry, individual abnormalities in the teeth are pretty sure to recur.

“Dr. Macguillen cites a case in which the superior lateral incisors stood within the arch, striking inside the inferior lateral and canine: all the children of the victim of this deformity showed the same peculiarity.

“Dr. Miller cites a case, a family of five children all variably affected by abnormality, *i. e.*, superior incisors and canines produced so that a space between the upper and lower teeth of nearly half an inch appeared when the jaws were shut. Dr. Watts cites a case of a family whose female members were without left upper lateral incisors, this persisted through four generations.

“Commonly it is said, the father gives abnormalities to the teeth, to this there are exceptions, maternal dental peculiarities sometimes being transmitted to her offspring. This, in a case which is related, a lady and her three daughters all had the left upper lateral incisors badly decayed while all the other teeth were sound. It is stated that the offspring of massive fathers who had delicately built wives, possess large teeth set in small jaws, hence arise overcrowding and irregularities.

“The moral is, says the writer, to early teach your children the laws of heredity that they may learn to select husbands and wives physically suited to their own physique.”

DEATH FROM NITROUS OXIDE GAS.

The occurrence of a death under nitrous oxide has lately caused a good deal of excitement in Paris. A retired magistrate, named Lejeune, went to a M. Duchesne, a well-known advertising dentist of Paris, to have a tooth extracted. Gas was administered, and the operation performed; it was then discovered that the patient was dead. From the fact that there was no appearance of hemorrhage

when the extraction took place, it is inferred that death must have occurred just prior to the operation. An examination of the body was made by Dr. Brouardel, but so far as we can learn, his report has not yet been made public. Judging, however, from the statements which appear in the French journals, death would seem to have been quite sudden, and to have been due to syncope, or failure of the heart's action, caused by the fear or the shock of the operation. One result of this unfortunate occurrence has been, says the Editor of the *British Medical Journal*, that a discussion has arisen in the French papers as to the right of dental practitioners to administer anæsthetics. It appears that, as a matter of strict law, only legally qualified practitioners of medicine are allowed to administer anæsthetics in France, but that this law has seldom been put in force against dental practitioners, even with reference to the use of chloroform and ether. The use of nitrous oxide is not expressly forbidden; and, owing to the general impression that it was free from danger, no question has hitherto arisen as to its use. Whether any attempt will now be made to impose restrictions remains to be seen. Another point referred to in this correspondence is one of which we have repeatedly pointed out the importance, namely, the necessity for the presence of a third party, whenever an anæsthetic is administered, to give assistance in case of accidents, and also as a witness. Cases illustrating this point have so frequently come under our notice, and we have referred to the subject so often, that we hope it is unnecessary to say more.

MEETING OF STATE DENTAL SOCIETIES.

Indiana, last Tuesday of June, at Lake Maxinknekee. J. E. Cravens, President; R. Van Valzah, Terre Haute, Secretary.

Kentucky, first Tuesday in June, at Louisville. Wm. Van Antwerp, President; E. C. Dunn, Louisville, Secretary.

Mississippi, third Tuesday of June, at Jackson. Geo. W. Rembert, President; R. G. Miller, Jackson, Secretary.

Missouri, second Tuesday in July, at Sweet Springs. D. J. McMillen, President; Geo. L. Shephard, St. Louis, Secretary.

New Jersey, Wednesday, July 20th, at Asbury Park. J. W. Scarborough, President; C. A. Meeker, Newark, Secretary.

North Carolina, second Tuesday in June. W. H. Hoffman, President; J. M. Hender, Fayetteville, Secretary.

Pennsylvania, Tuesday, July 27th, at Cresson Springs. Geo. Elliot, President; W. H. Fundenberg, Pittsburg, Secretary.

Virginia, Tuesday, August 19th, at Charlottesville. J. H. Moore, President; L. M. Cowarden, Richmond, Secretary.

Wisconsin, July 20th, at Milwaukee. B. S. Markleim, President; C. A. Southwell, Appleton, Secretary.

East Tennessee, first Tuesday of August, at Chattanooga. R. A. B. Noyers, President; S. N. Rothrs, Secretary.

Northwestern, fourth Tuesday of July, at Fargo, Dakota. Lewis Ottofy, President; S. J. Hill, Fargo, Dakota, Secretary.

AMERICAN MEDICAL ASSOCIATION—SECTION ON ORAL AND DENTAL SURGERY.

FOR "ITEMS OF INTEREST," BY MRS. M. W. J.

The American Medical Association convened in New Orleans, the Section on Oral and Dental Surgery holding two sessions, *viz.* April 28 and 29.

Three valuable papers were read and discussed. The first was by

DR. JOHN S. MANHALL, ON THE USE OF COCAINE

in dental operations, being the record in detail of ten cases treated with the hydrochlorate (muriate) of cocaine; ten with the oleate; and ten with the citrate. As the result of this experience, the muriate of cocaine was found to be almost without value as an obtundent of sensitive dentine; the oleate still less effective; while the citrate, with but one exception, was a perfect success.

The muriate produces its anæsthetic effects only on mucous membrane; the oleate is designed for use on the external surface of the body, where the muriate has no effect.

The citrate is a new form, manufactured by Merck, and designed by him specially for use on sensitive dentine. It should be prepared in the form of pills, containing $\frac{1}{4}$ gr. each, the excipient being gum tragacanth, dissolved in glycerine. For use, the pill is divided in two or four parts, according to the size of the cavity. The cavity is cleansed from debris and washed with tepid water. The portion of citrate is then inserted in the cavity, covered with cotton saturated with tepid water. This dissolves the citrate and flows it over the dentine. In five minutes, usually, the most sensitive dentine can be excavated without pain, though sometimes a second application may be needed.

In the discussion which followed, opinion was found to be divided as to the merits of the hydrochlorate or muriate of cocaine.

In the hands of Dr. L. A. Thurber, of New Orleans, it proved a perfect success in every case. He had not one failure to record, if the cavities were kept perfectly dry.

Dr. J. R. Walker, of New Orleans, had occasional success, but more frequent failures.

Dr. I. C. Williams, of Boston, found it valuable, as a rule, in the teeth of young children, but not in teeth of dense structure.

The variation in results was considered attributable to differing conditions in the circulatory and nervous system of the patient, the condition of the pulp, and the structure of the tooth.

THE USE OF ARSENIC

was discussed, a very small quantity, say 1-50 or 1-100 of a grain being considered sufficient, and safe if swallowed. To prevent bad effects of sulphate of arsenic on soft tissues, Dr. Baldwin applies dialyzed iron to the gum to neutralize the arsenic.

Dr. G. J. Fredrich, of New Orleans, took the ground that

A HEALTHY PULP IS NEVER SENSITIVE;

that it could be touched with the excavator and not felt; that splinters of wood could be driven into the pulp, and left in the root canal as a filling, without giving pain or creating disturbance. He often filled roots in that way. It was agreed by all the others that a live pulp was usually exquisitely sensitive.

The muriate of cocaine was found valuable in opening an abscess, and in lancing the gums preparatory to extracting. Also in obtunding the nerve.

Dr. Jacob L. Williams, of Boston, read a paper on

"THE ALTERNATIVE OF REST WITH EFFORT."

This is, of course, opposing the general impression that "exercise strengthens;" that, on the contrary, continued effort when fatigued—fatigue to exhaustion—produced debility instead of strengthening. That rest consists in absolute repose, not merely change of occupation, as commonly taught. That the eyes, and all the organs should be allowed rest when fatigued, and that the dentist should rest himself, and let his patients rest, when both are tired. That the eyes, when fatigued from long dental operations, are rested by looking around slowly without fixing them on anything in particular, or by looking at some pleasant object from the window. That we should not go beyond the point of fatigue to that of exhaustion, and that we should consider the condition of the patient as well as our own, and if possible, rest when tired.

The discussion following, took a broad range. The means of preventing the injury done to the eyes of dentists by prolonged operations; at an unnatural focus, with wrong conditions of light, was discussed at length. A direct light, without glare, and free from changing shadows, was considered essential. If the light was what it should be in these particulars, the eyes of the dentist would suffer less, and need less rest. Dr. Williams opposed the idea that change of occupation meant rest. That effort in any direction was a draft on the vital forces.

Dr. Walker, of New Orleans, considered that absolute repose did not always mean rest. After prolonged chair-work, exercise was needed, to stir up the blood and quicken the circulation for proper distribution of nutrition before repose would prove beneficial.

Dr. A. E. Baldwin, of Chicago, recommended bromide of potassium, thirty to sixty grains, for both operator and patient when ex-

hausted, nervous and irritable. Also a smaller dose as a preparation for endurance under a long and difficult operation.

Dr. Williams thought we needed a lens as much as the jeweller or the engraver. We should not be afraid to use helps; and should endeavor to take rest when fatigued, without working to exhaustion.

Dr. Oscar J. Corkey, an eminent surgeon of Baltimore, read a paper entitled,

"A CASE OF SARCOMA OF THE LOWER JAW, WITH SUCCESSFUL REMOVAL." As explanatory, he exhibited a cast of the left side of the face and neck, showing the enormous enlargement from the tumor; a cast of the jaws showing the displacement of the teeth, and consequent lack of articulation by the enlargement of the jaw-bone; the jaw-bone itself, as removed with the tumor; photographs of microscopic sections of the sarcoma tissue, etc. The subject was a negro boy, fifteen years old. He was admitted to the Baltimore Hospital in May, 1882. A flap was dissected, exposing the tumor and the enlarged gland. The jaw-bone was sawed through at the median line, the central incisor having been extracted as a starting point. The tumor was wrenched away with the jaw-bone, and the gland cut out. A branch of the external jugular was cut, but ligated. The cut healed kindly; listerine being used throughout the treatment. The boy recovered rapidly from the operation, and was discharged twenty-one-days later. Two years afterward he was seen by Dr. Corkey, and had had no recurrence of the trouble. Was supporting himself as a farm-hand.

A microscopic examination showed the tissue to be dense, white, fibrous stroma, with dilatations filled with spindle-cells, each cell having a single, oval nucleus. The cells showed no tendency to cystic degeneration.

Dr. Cockery explained a case of this kind—epulis involving the lower jaw—a fibroid tumor originating in the jawbone itself, and not in the gum, was exceedingly rare, being scarcely mentioned by authors. Dr. Baldwin inquired as to the probability of permanent cure, there being always possible sarcomatous infiltration in remaining portions of bone. Dr. Cockery replied there was, of course, danger of re-current fiber in fibroids sarcoma, unless all of the bone involved was removed, which was the case in this instance, the inferior maxilla being considered two bones, joined at the median line. In this case the bone was entirely removed from the median line to the condyle.

Dr. Walker, of New Orleans, exhibited casts of some remarkable cases of irregularity, explaining the methods employed in regulating. Also what is probably the youngest tooth ever filled, a superior right central incisor, filled for an infant eleven months old; the tooth only two months erupted.

Adjourned, *siné die*.

Editorial.

THE HUMILITY OF GREAT MEN.

The honored editor of a dental *contemporany* says:

“Our friend and occasional contributor, Dr. Frank A. Brewer, has been lately bereaved by the death of a daughter, a bright, young lady of twenty years. How sad that one so young and full of hope is snatched away, while old, worn-out and useless individuals, like the writer of this, are left. But, no doubt, Heaven is brightened by such accessions, while down here such dispensations look dark and gloomy.”

A proud man flippantly looks below, and exults in his own superiority; an humble man looks above, and is abashed at his own littleness. A proud man arrogantly assumes more than he possesses, and is puffed up with his self sufficiency; an humble man views with modesty his own attainments and usefulness, and gives to a mere child an upper seat. A proud man belittles all that is not his own, magnifies others' weaknesses, and knows no sympathy; an humble man exalts the virtues of those about him, is pleased to serve the weakest, and mourns with those who mourn.

It is these qualities of an humble man that make him great, and it is these qualities of a proud man that make him of little worth; for the humble man becomes great by continually seeing the necessity for learning, and he becomes useful by his humility in being the servant of all; but the proud man, boasts of his tinsels and walks on stilts, becomes dwarfed in his powers and is his own greatest stumbling block to progress, happiness and usefulness. With the humble man, above all other qualities, and better than all, the development of his spiritual nature and the enlargement of his warm, throbbing heart, fits him to sit down beside the suffering and bereaved, and to become Heaven's best messenger of sympathy and love. In self abnegation he thinks only of those he would comfort.

The faintest whisper from such a soul, exalted by humility, developed by spiritual refining, and made human by the sympathy of a great heart, lifts the sorrowing one into the atmosphere of Heaven. In such a place—where angels drop a tear and Heaven bends low to bless—how out of place is the thoughtless, unfeeling, selfish man of pride. Such a man “in trouble, is like a broken tooth and a foot out of joint.”

Atropia for Sensitive Teeth.—In having a very sensitive tooth prepared for filling the other day, the dentist—one of my sons—moistened the cavity with a little atropia—3 grains to $\frac{1}{2}$ oz. water—and the effect was magical. Instantly the operation was quite bearable.

Give us a thought.—Many in the profession seldom write for the journals because they cannot elaborate a studied essay. Never mind that. If you have a really important item, give it to us. Don't wait till you can write a long article. What are you more likely to read in a journal? Is it the long, exhaustive articles, or the short, crisp, practical notes? You will, at any rate, read the last first; and then, if you have time, the first. We want both to make dental literature complete, but if you have not the real ability to write learned essays, don't attempt it. Do what you can in the best way you can, and we will accept it if you will only give us an important thought.

In England, recently, whilst a dentist was complying with a patient's request to use his painless dentistry process, in which bichloride of methylene was used, he observed that the boy's head dropped, that he turned pale, and that he was gasping for breath. A restorative was administered, but without success. A medical man was summoned, but before his arrival death had occurred.

Cohesive gold is the softest gold—as Dr. Atkinson says, the non-cohesive gold is non-cohesive because of some foreign substance on its surface, producing an hardening film, making cohesive gold preferable. Also heavy gold has the power to make a filling in less time and more solidly than any other form. If I want to do the very best work, I want at least 240 gold, and if the cavity is small and the walls very strong, I want 480. You will learn that the strength of the walls of the cavity and the resistance they will afford has philosophical bearing on this question. To any one who is acquainted with the laws of mechanics, it is only necessary to suggest that and it will be understood. We are not feeling our way along now as we were when we divided the time between pulling teeth and shoeing horses and making plow-shares; that day has gone by; but let me tell you that the men who knew how to climb the ladder are the men who helped to build it through all its successive steps; it is the old man who keeps his freshness who apprehends and appreciates these things, and who can condone the weaknesses that may come from wrong impressions and that militate against good results.

The simplest and least expensive method, says the *American Architect*, for removing saltpetre exudation from brickwork, when the efflorescence is in positions where the sun and wind do not have free access, is to wash it off with diluted hydrochloric or common muriatic acid of commerce. About half a pound of the acid is used with an ordinary pailful of water, the application being made with a sponge.

Overwork.—It is not by a brilliant display of activity, or temporary fortification with artificial tonics, that a lasting victory will be gained for health against persistent disease, unless there is within call additional supplies of sustaining and restorative vitality, to meet readily any demands of the case.

No doubt, a large proportion of people, in the artificially active life attending our civilization, are maintaining an appearance of fair health while using all the nerve strength they have every day, leaving practically no reserve, and liable to succumb, as they are constantly doing, at any extra emergency or strain.

Indeed, in observing the dental and oral health of individuals, how constantly do we see a *persistent* abnormal condition, which can only be accounted for from this fact. Such overdraft may be from a constitutional disposition to activity that might be called a nervous diathesis, or from obligatory or voluntary over-effort for an object, or from some disease or condition of the system drawing greatly on the vital force.

Specialties in Dentistry is becoming fashionable, or at least many think the tendency is to favor them. And why not? Medicine has its specialists: physicians, surgeons, obstetricians, gynecologists, aurists, oculists, and others. Dr. Newkirk, of Chicago, prophesies that gradually the dental profession will be divided into specialties, so that we shall have the artificial dentist, one devoted to the manufacture of substitutes for natural teeth; the oral physician, who treats all diseases of the mouth excepting the teeth; the oral surgeon, who confines himself to surgical operations of the mouth and its contiguous parts; the dental surgeon, who attends to the repair of natural teeth; and the specialist (for whom he has not yet found a name) who attends to regulating teeth.

Clattering of Artificial Teeth.—This is generally caused by the teeth being too long. By taking the teeth all off and make a shorter bite will almost always remedy the annoyance.

A Mr. Childs, in the *Cosmos*, suggests boring holes from the grinding surfaces of the teeth downward and filling these with soft rubber so that the rubber will protude and silently receive the occlusion of the opposite teeth, but we think this an unnecessary and objectionable procedure.

Frost bitten feet may be cured, it is said, by rubbing them well with alcohol and then holding them to the fire, just before retiring, for a few nights.

To overcome rivalry do superior work.

Miscellaneous.

SOME RATHER UNUSUAL VIEWS ON DYSPEPSIA.

Austin Flint, M.D., L.L.D., recently presented to the New York Medical Association some views on dyspepsia which will not generally be considered as orthodox.

After combatting what he considers popular errors, he says:

"Do not adopt the rule of eating only at stated periods—twice or thrice daily. Be governed in this respect by appetite; eat whenever there is a desire for food. Eat in the evening, or at bedtime, if food is desired. Insomnia is often attributable to hunger. In the choice of articles of diet be distrustful of past personal experience, and consider it to be a trustworthy rule that those articles will be most likely to be digested without inconvenience which are most acceptable to the palate. As far as practicable, let the articles of diet be made acceptable by good cooking; as a rule, the better articles of food are cooked, the greater the comfort during digestion. Never leave the table with an unsatisfied appetite. Be in no haste to suppose you are separated from the rest of mankind by dietetic idiosyncrasies, and be distrustful of the dogma that another man's meat is a poison to you. Do not undertake to estimate the amount of food which you take. In this respect different persons differ very widely, and there is no fixed standard of quantity which is not to be exceeded. Take animal and vegetable articles of diet in relative proportions as indicated by instinct. In the quantity of drink follow nature's indication, thirst. Experience shows abundantly that, with a view to comfortable digestion, there need be no restriction in the ingestion of fluids.

"The ground which I take is, that the diet which in healthy subjects is conducive to the preservation of health is the diet which is desirable in cases of dyspepsia. Restrictions of diet, when digestion is difficult or labored, with a view to adaptation to a supposed diminished capability of the digestive organs, I believe to be never successful, and are injurious in proportion as the restrictions involve diminished assimilation and nutrition. It is a fallacy to suppose that the digestive organs in dyspepsia need rest. Exercise of the functions of the different organs of the body tends to the maintenance of their functional capabilities.

"In some cases which have come under my observation, patients who had been chronic dyspeptics for many years found themselves at once cured by adopting a full and varied diet, following Nature's indications, and taking no thought of what they should eat or what they should drink, and occupying the mind with other topics than those relating to their digestion.

"Finally, let us learn a practical lesson from our observations of the class who 'live to eat'—the *gourmet* and the *gourmand*—they 'who fare sumptuously every day.' Dyspeptics are not common among this class. An over-stimulated appetite may lead to other affections—such as gout, indigestion, fatty heart, etc.—but rarely to dyspepsia.

"Let us learn another practical lesson from our observation of those who 'eat to live'—the hard-working laborer or mechanic, who is

satisfied with obtaining an ample supply of food, and who has no time to study, by his personal experience, the relations of diet to digestion. Our dyspeptic patients do not belong to this class.

"Let us learn another lesson from our observations of the classes to which our dyspeptic patients do belong. They are, for the most part, lawyers, clergymen, doctors, students, teachers, artists, bankers, literary men, and men of leisure. Of those belonging to these classes, they become dyspeptics who study, from the best of motives, how to live, as regards diet, so that "digestion shall wait on appetite, and health on both." And for this end they endeavor to regulate diet by watchfulness, personal experience, theoretical notions, or, perhaps, scientific principles.

"Let a fourth lesson be learnt by observing the results of the dietetic treatment of dyspepsia based on the conclusions to be drawn from the previous lessons."

EDITORIAL REMARKS.

There are many to whom these remarks are adapted: let such be profited by them; there are others who should be warned not to commit themselves unservedly to their practice.

1st. There may be some who injure themselves by not eating enough. Are there not more who produce indigestion by eating too much?

2d. There may be some who do not eat a sufficient variety of food—confining themselves to oatmeal, brown bread and other coarse foods. Are there not more who become dyspeptics by eating everything their palate craves without reference to propriety?

3d. There may be some who are too particular about their times for eating, and when they should not eat. Are there not more who spoil a good appetite for good meals at proper times by hampering their appetites at all hours?

4th. There may be some whose stomach is so strong, whose digestion is so vigorous, and whose physical activities are so incessant they need not regard what they eat, or how much, or when. They are for eating, like the Methodist preacher for preaching—always ready. Are there not more who for eating are like other more conservative speakers—preferring wasting time for preparation that they may do themselves and their subject justice?

5th. There are some who can go from the field to the office, from any vigorous outside employment to sedentary vocations, and thrive on the same foods. Are there not others to whom a change of diet is imperative?

A receipt for making blue-black writing ink—(It looks blue in the bottle but turns black after writing). Take 1 pound bruised galls, 1 gallon boiling water, $5\frac{1}{3}$ oz. ferrous sulphate (green vitrol) in solution, 3 ounces gum arabic, previously dissolved, and a few drops of an antiseptic, such as carbolic acid. Macerate the galls for twenty-four hours, strain the infusion, and add the other ingredients. When this is completed, mix it with a strong solution of fine Prussian blue in distilled water.

Say nothing ill of a competitor.

NITROGLYCERINE,—WHAT MAKES IT EXPLODE WITH SUCH GREAT VIOLENCE?

This inquiry will be answered by stating that in the nitroglycerine there is simply the same character of corpuscles as exist in the blood, and that they are operated on by the nitric or any acid with which they are compounded in the same way that a current of electricity in the blood operates on the corpuscles in the blood. Every explosion of nitroglycerine is but a conversion of the corpuscles of the glycerine into electricity, and the only thing that renders such an explosion more terrific than an explosion of gunpowder or other substance, is the fact that in the explosion of glycerine, the whole of the substance is converted into this subtle influence by a single change. A vast amount of wonders is disclosed by this simple revelation of the character of nitroglycerine explosion.

When this substance is exploded, there is no smoke and no gases generated from the glycerine. The atmosphere is affected for a short distance around the explosion, and it is affected by the current of electricity that is generated in the explosion. The gases of the atmosphere are actually burned by the violence of the current. Now, the capacity of the corpuscles of the blood or of fats to be converted into electricity in an instant is actually proved by the action of acids in the case of glycerine. It is simply a decomposition of such organizations by the acid in the same manner that metals are decomposed in a common battery by the same kinds of acids.

A piece of zinc or copper would explode as quickly as glycerine if its component parts were as thin, and soft, and hollow, as a corpuscle of fat, or of the blood. All the substances of the world would explode as quickly if constructed in a similar way. All the philosophy for the generation of electricity is observed in this explanation of the conversion of glycerine into this influence. The very work of creating electricity is disclosed in this affair. It is simply a decomposition of substance to an extent that will permit no further change.

Now, all there is of a corpuscle is a slight amount of electricity condensed into a semisphere or actual shell. It is the actual cell of the animal or human body, and it is produced by the escape of this influence in the blood, through the pores of the organs and body, or condensing in caps or semi-spheres as a puff of steam condenses at the nose of a tea kettle, and the condensation is the act of constructing. The continuation of these cells are what are called tissues, and a whole bundle of them constitutes an organ, and a whole bundle can be found wherever there is a semi-circle of the arterial channels of circulation; these cells are generally copies of such semi-circular conditions of blood vessels.

The electricity of the blood is obtained by an inhalation of the electricity of the atmosphere and by the decomposition of the corpuscles in the blood. The corpuscles in the blood are exploded by this current of the influence obtained from the atmosphere. In these explosions there is only a slow burning of the corpuscles, but where a current of this agent is generated quick enough in the blood it will explode the corpuscles in the blood vessels as quickly as they are exploded in the action of nitroglycerine.

This is occasioned in every instance of the action of the dynamite called strychnine, when in the system. This article of medicine is as

little understood as the philosopher's stone, and that is as little understanding as can be possessed, for there is nothing in the stone to understand.

Strychnine is nitroglycerine in the form of crystals, and it is nothing else.

Nitroglycerine can be crystalized, and the action of the two compounds will be identical, except that the strychnine is exploded by a small amount of acid, and the glycerine requires a great deal of a powerful acid.

In the explosion of strychnine in the blood vessels, the current that is generated will explode the corpuscles of the blood, and the sudden influence of this current thus generated, gives the muscles their convulsive action.

No other process takes place, and the general extent of the contractions is the best proof of the fact that it is but an explosion of corpuscles in the blood. If these explosions are moderate, only a bracing of the nerves is experienced by the operation. If very violent, a person is destroyed by the effects.

In the increase of the electricity of the blood by the uncommon amount of the decomposition of the corpuscles is found the cause of the strengthening of the nerves. It is only electricity that gives strength to the nerves or to anything else.

In this fact the cause also of the greater degree of strength of a person who is occupied by out-door employments can be found.

Now, let us again assure our good friends of the electrical pursuits of the country, that they should not attempt any longer to find electricity in the motion of molecules. They will never find it there, and they will never find any such molecules, or any such motions.

A current of electricity can be obtained by decomposing any substance, it matters not what, and it cannot be found in any other way.

It is all the while being generated in the affairs of nature, and by our electricians in this way; and it is of no consequence what the instrument for its generation is, only a decomposition of substance takes place.—*Problems of Nature.*

Treatment of the temporary teeth is a primary education, the basis of future work, and if the dentist does his work well, he lays the foundation for future practice. In regard to gaining the confidence of children, which is an important matter, often the first thing to do is to get rid of the parents who come with them. The parents are apprehensive of some personal discomfort to their children, and its manifestation interferes very much with the dentist's endeavor to quiet the child's fears and gain its confidence. If we have the child placed in our hands, we can gain its confidence and do what is necessary. Even if we don't accomplish anything at the first sitting but make the children understand that we are their friend and seeking their best interest, we have made a good beginning and removed a great obstacle in the way of successful work. Make a second appointment, or perhaps three or four appointments, before you do any real work, and finally you will succeed. We hear a great deal said about the want of appreciation of our services on the part of the public. The trouble lies with us, not with the public. Water never rises higher than the fountain. We must educate the people as well as ourselves.—GEO. A. MILLS.

Tempering Process.—Mr. P. Gabriel gives the following new method of tempering steel, in the *Revue Chronometrique*. Cyanide of potassium is dissolved and red heated in a metallic or earthen crucible; the pieces of steel are then immersed in the liquid till red, and afterward plunged in water. This process is said to give great satisfaction, and many advantages are claimed for it. The temper is said to be harder, and if a finished piece is under treatment, the polish is not lost. It will show a grayish tint, but the original polish will reappear immediately, if a piece of polishing wood with the finest rouge is passed over it. It is also said that if the steel has been well annealed, and not put out of shape by the file or the hammer, it will come from the crucible perfectly straight; arbors, 4 or 5 centimeters long, are not deformed, if tempered by this method. It is recommended as particularly advantageous for tempering escapement springs.

Writing and Lettering on Steel.—Steel can be written on or engraved by first cleaning it with oil and then spreading a coating of melted beeswax on it. The writing can then be done on the beeswax, with any sharp instrument, and the lines and marks thus made should be painted with a fine brush dipped in a liquid made of one ounce of nitric acid and one-sixth of an ounce of muriatic acid.

When the written lines are filled with this liquid, it should be allowed to remain five minutes, and then the article should be dipped in water and afterward cleaned.

Change of Climate.—Of the effect of the minute change in the aspect of the earth to the sun to modify the climate of the various latitudes there can be no doubt. The depression or elevation of portions at different times must have modified climate also. Some think the open sea north of Greenland a myth, but there was a time, probably, when Greenland itself had a warmer climate. In a recent lecture Dr. P. H. Carpenter, of Eton College, mentioned the case of Greenland as an illustration of the manner in which the earth's history is read from fossils, those remains of by-gone life, which in the middle ages were regarded as "sports of nature." Fossils of four climates, all warmer than the present icy one, are found in that country. Remains of the oak and the maple tell us that the climate was once very similar to that of England to-day, and the coal found lower down, shows that something approaching tropical heat prevailed at an earlier period. The fossils of certain sea creatures appear on the land, showing that Greenland once lay beneath the sea, and that its water was temperate, while the coral, obtained still lower down, must have grown when the waters were still warmer.

Chilblains.—Now that recipes for chilblains are in order I will send you mine. Soak the feet in water as warm as it can be borne, for ten minutes, and then give them a good shower-bath of cold water; a few applications will do away with that unpleasant itching. I first recommended it some fifteen years ago to a person troubled with cold feet, and who was troubled with chilblains also, and it proved effectual in curing both.

B. E. MEAD.

GREENWICH, Conn.